

TECHNICAL JOURNAL

The Nation

Refrigeration Service Engineer

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DETROIT

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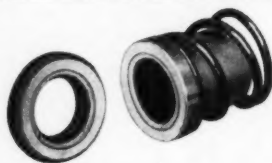
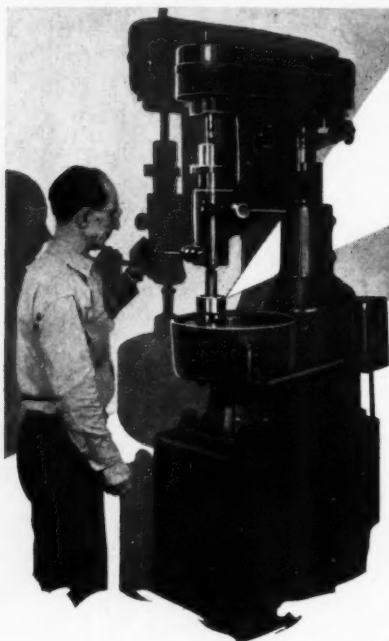
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GERATING
AND
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CHICAGO SEALS



with
**PRECISION
LAPPED
SURFACES**

Combining highest human skill and scientific precision machine lapping, CHICAGO SEALS are accurately finished to

MILLIONTHS OF AN INCH

Careful inspection assures the highest quality and trouble-free operation.

FOR BETTER PERFORMANCE USE

**CHICAGO
VALVE PLATES**

SOLD THROUGH LEADING



**CHICAGO
SEALS**

REFRIGERATION WHOLESALERS



CHICAGO SEAL CO. 20 N. WACKER DR., CHICAGO 6, ILL.

THE REFRIGERATION SERVICE ENGINEER, Nickerson & Collins Co., Publishers, 433-435 N. Waller Ave., Chicago 44, Ill. Published monthly, Vol. 16, No. 5, May, 1948. Entered as second-class matter March 4, 1938, Chicago, Ill., under the Act of March 3, 1879. Additional entry at Beloit, Wis., April 15, 1948. Copyright 1948. Subscription in the U. S. \$3.00 per year; other countries \$4.00.

The Ansul Research Staff

REPORTS ON:

SLUDGES

Approximately 90 % of the sludges produced in refrigerating systems are due to moisture. The exact cause can always be determined by analysis, but the appearance of the sludge (see photos) is usually indicative of the cause.

SLUDGE DERIVED FROM MOISTURE—

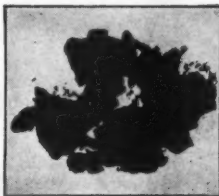
If water is present in a machine, the nature of the sludge depends upon the type of refrigerant and length of time the water is present. All refrigerants ... sulfur dioxide, methyl chloride, Carrene and "Freon-12" ... react with water to produce corrosion products characteristic of each. To prevent sludge, the amount of water present in a refrigerating system must be small enough to avoid ice separation and corrosion. For "Freon-12" and methyl chloride, a quantity of water approximately .05 % by weight will cause corrosion; the limit is somewhat higher for sulfur dioxide.



GRANULAR SLUDGE
... due to moisture



FLUID SLUDGE
... due to oil



HARD SLUDGE
... due to moisture and oil



SEND FOR
"SLUDGES"
by Ansul
Research Staff

A detailed analysis of the refrigeration sludge problem.

ANSUL WHOLESALERS are ready and equipped to render an intelligent, co-operative service to refrigeration engineers and maintenance men on problems which arise from time-to-time in the operation of refrigerating systems.

FOR EXAMPLE:

The Ansul Research staff has developed a method for analysis of sludges. This analysis usually gives the answer as to the origin of the sludge. If you have a sludge problem, send a sample of the sludge with pertinent information to the Ansul Research Laboratory through your Ansul wholesaler. An analysis report will be made for you without charge.

Ansul Refrigerants are available at leading wholesalers everywhere.



*REG. U. S. PAT. OFF.

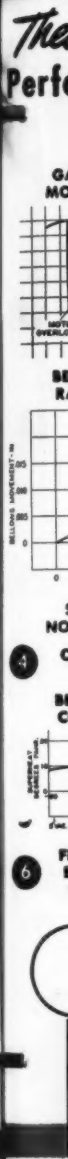
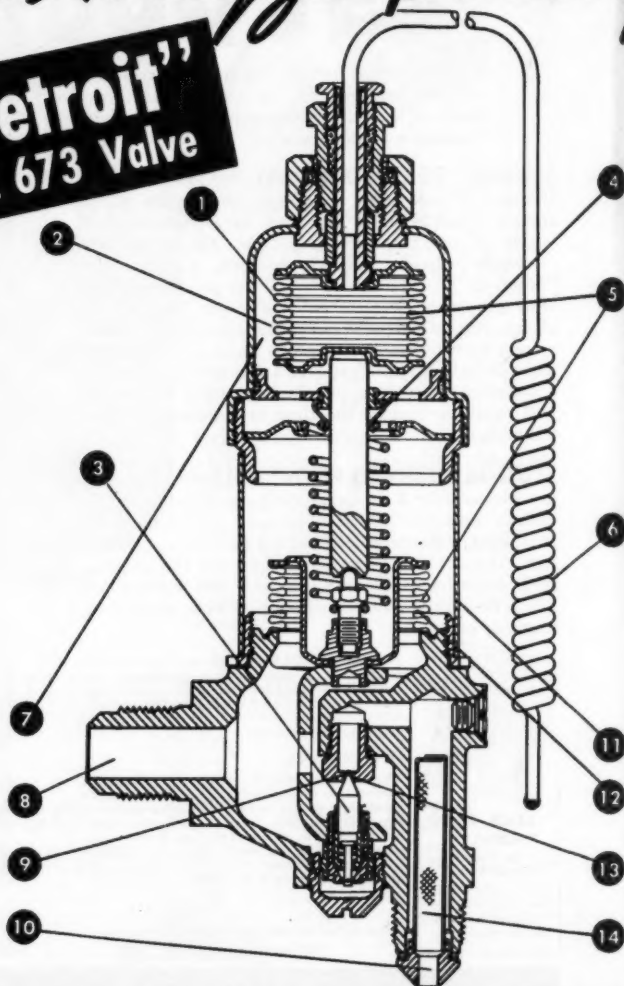
ANSUL CHEMICAL COMPANY

REFRIGERATION DIVISION, MARINETTE, WISCONSIN

DISTRIBUTORS FOR KINETIC'S "FREON-11" "FREON-12" "FREON-21" "FREON-22" AND "FREON-113"

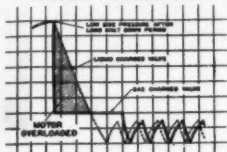
Let's Analyze Quality

"Detroit"
No. 673 Valve

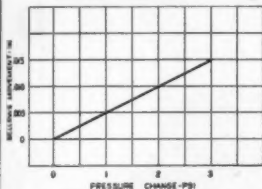


These Add up to Perfect Refrigerant Control

GAS CHARGED FOR MOTOR PROTECTION



BELLOWS FOR WIDE RANGE FLEXIBILITY



SWIVEL TYPE NEEDLE NO RUBBING—NO LEAKS

CONTROLLED FRICTION FOR ANTI-CHATTER

BELLOWS SELECTED FOR CONSTANT SUPERHEAT



FLEXIBLE COILED FEELER BULB MAY BE SHAPED TO FIT SUCTION LINE



These Add up to Flexibility of Installation

GAS CHARGED POWER ELEMENTS FOR HIGH AND LOW TEMPERATURE

STANDARD OUTLETS AVAILABLE— $\frac{1}{4}$ " FPT $\frac{3}{8}$ " OR $\frac{1}{2}$ " S.A.E.

STANDARD ORIFICES $\frac{3}{64}$ "— $\frac{1}{16}$ "— $\frac{1}{32}$ "— $\frac{1}{64}$ "

INLET SUITABLE FOR $\frac{1}{4}$ " OR $\frac{3}{8}$ " LIQUID LINE

These Add up to Customer Protection

STAINLESS STEEL SPACER WITH SILVER SOLDERED JOINTS

DURAFLEX BELLOWS

DELUBALLOY NEEDLE AND SEAT

STRAINER FURNISHED WITH VALVE

They all add up to The Famous Quality of
"Detroit" No. 673 Valve—"The Standard Of The Industry"

DETROIT LUBRICATOR COMPANY General Offices: 5900 TRUMBULL AVENUE
DETROIT 8, MICHIGAN

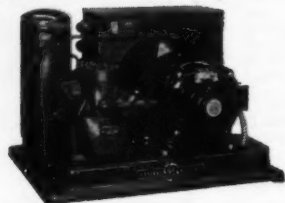


Division of AMERICAN RADIATOR & STANDARD SAFETY CORPORATION
Canadian Representatives: RAILWAY AND ENGINEERING SPECIALTIES LIMITED, MONTREAL, TORONTO, WINNIPEG

"Detroit" Heating and Refrigeration Controls • Engine Safety Controls • Float Valves and Oil Burner Accessories
Detroit Expansion Valves and Refrigeration Accessories • Stationary and Locomotive Lubricators



Here's a new **SMALL** unit with **BIG** unit features



PACKED with the sales appeal only good engineering can give, the new General Electric Type CW Condensing Units embody big unit advantages rarely found in fractional hp machines.

For example, a forced feed lubrication system. And the G-E lubrication system has only one moving part which provides ample oil for every "wear point" of the compressor. That's one reason why G-E units last longer, operate more smoothly and give your customers the kind of dependability that helps your reputation.

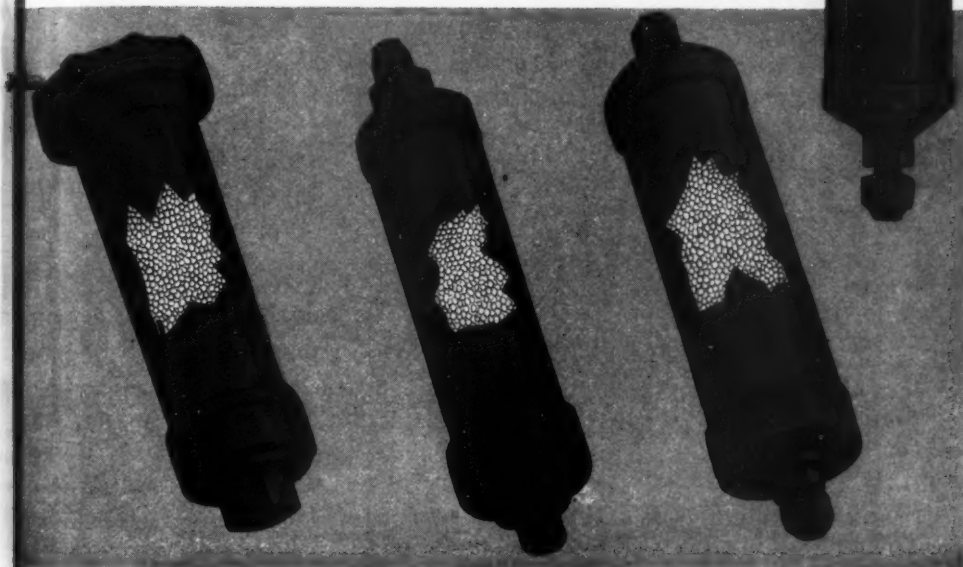
The CW line, ranging from 1/6 hp to 1-1/2 hp is designed so that many vital parts are interchangeable. For example, the same shaft seal is used throughout the entire line. This means lower parts stock, lower overhead, less time lost in obtaining the right part.

You'll find every installation of this new General Electric line a real reputation and business builder. Call your G-E representative for full details. General Electric Company, Air Conditioning Department, Section R8125, Bloomfield, N. J.

GENERAL ELECTRIC

Better Refrigeration

Specify S/V Sovabead for your Dehydrators



New Type Silica Gel Desiccant in Bead Form Offers Many Advantages

- You can be sure of maximum moisture adsorption when you get S/V Sovabead in your dehydrators.

Controlled laboratory tests show that these new beads, developed by Socony-Vacuum, are capable of reducing the moisture content of Freon 12 Refrigerant to as low as .0002 of one percent.

What's more, the uniform beads offer less resistance to the flow of liquid and gaseous refrigerants than other desiccants. You get less dusting and attrition loss.

So make certain of a superior desiccant next time you order dehydrators. Specify this new

bead type desiccant from your supplier.

This table shows maximum drying effects of desiccants obtained in tests conducted by an independent laboratory. Standard dehydrators containing the activated desiccant were flooded with wet refrigerants and analyses were made after at hourly intervals.

REFRIGERANT	DESICCANT	INITIAL MOISTURE	AFTER 1 HOUR	AFTER 2 HOURS	AFTER 3 HOURS
"Freon 12"	S/V Sovabead	0.0060	0.0008	0.0006	0.0002
"Freon 12"	Silica Gel	0.0060	0.0008	0.0006	0.0002
Methyl Chloride	S/V Sovabead	0.0160	0.0029	0.0025	0.0020
Methyl Chloride	Silica Gel	0.0160	0.0029	0.0025	0.0020

Socony-Vacuum Process Products

SOCONY-VACUUM OIL COMPANY, INC., 26 Broadway, New York 4, New York,
and Affiliates: MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION



It's only a matter of Minutes Now!



Many service engineers and contractors can easily remember the "not too long ago" when it was a matter of days—yes, even weeks—to secure the very essential refrigeration parts, accessories and supplies needed to meet your customers' requirements.

★

All that is changed now. It's only a matter of a phone call or immediate pick-up from complete refrigeration stocks maintained by your local wholesaler.

★

Yes, your refrigeration Wholesaler has contributed toward helping you expand the refrigeration service and installation business, and has provided the distribution you need to give prompt and efficient service to your customer.

★

There is a mutuality of interests between the Refrigeration Wholesaler, the refrigeration service engineer, the refrigeration contractor and dealer.

★

The Wholesaler who displays the emblem of the Refrigeration Equipment Wholesalers Association, has pledged himself to a "statement of policy" to protect your interests and to provide the most economical and efficient distribution of the supplies you need in successfully conducting your business.

[Over 180 Wholesaler members of REWA, with 300 branches, cover the country with well-kept stocks of refrigeration supplies, equipment and accessories to serve you.]



Refrigeration Equipment Wholesalers Ass'n.

Association Headquarters

920 East McMillan St.

Cincinnati 6, Ohio

NEW UNIT COOLER

ONE OF THE BIG THREE OF 1948



● This is the streamlined beauty with motor mounted in the center of its Round Coil—the new Peerless "Pie Plate" where all the primary and secondary surface is IN THE AIR STREAM. The fans are round—why should coils be square? Even the return bends on this coil are in the air stream. There is no waste surface. The Unit Cooler is a condensed package of refrigeration power, occupying

small space for capacities given. Unfailing mechanical performance creates gentle air velocities for dependably efficient cooling, producing superior performance at minimum operating cost. Installation is an easily accomplished, one-man job. For use in all types of fixtures and walk-in coolers where general refrigeration is required. Complete with built-in heat exchanger and suction spinner.

Model No.	List Price	Capacities B.T.U. per Hr. at Given T.D. Between Air and Refrigerant			Motor and Fan Characteristics				Overall Dimensions Including Water				Connections		
		1"	10"	20"	Motor H.P.	R.P.M.	Fan Size	C.F.M. Capacity	Height	Width	Depth	Liquid	Suction	Drain	
66	\$39.15	65	650	1300	1.100	1550	8	210	13	11 1/2	6 1/2	1/2	1/2	1/2	
96	70.50	95	950	1900	1.100	1550	8	200	13	11 1/2	8	1/2	1/2	1/2	
126	80.00	125	1250	2500	1.100	1550	10	350	15	13 1/2	8	1/2	1/2	1/2	
226	110.45	225	2250	4500	1.30	1000	12	540	18 1/2	17 1/2	10	1/2	1/2	1/2	
456	140.00	450	4500	9000	1.30	1000	12	500	18 1/2	17 1/2	10	1/2	1/2	1/2	
606	190.00	600	6000	12000	1.30	1000	16	1050	21 1/2	20 1/2	11	1/2	1/2	1/2	
906	248.00	900	9000	18000	1.6	1140	20	1800	30	28 1/2	12	1/2	1/2	1/2	
1256	326.00	1250	12000	24000	1.6	1140	20	1700	30	28 1/2	12	1/2	1/2	1/2	
1856	387.00	1850	18500	37000	1.6	1140	24	3000	42 1/2	41	13 1/2	1/2	1 1/2	1 1/2	
2456	460.00	2450	24500	49000	1.6	1140	24	2800	42 1/2	41	16 1/2	1/2	1 1/2	1 1/2	

ENGINEERING DATA ABOVE

FOR BOX TEMPERATURES ABOVE 32°
FOR USE WITH FREON, METHYL CHLORIDE AND SULPHUR AS REFRIGERANT



PEERLESS of AMERICA, Inc.

2901 LAWRENCE AVE.

CHICAGO 25, ILLINOIS, U. S. A.

SERVICE ENGINEER

7

May, 1948

BACK AGAIN



HEAVY DUTY BEER COOLERS

by Temprite

Out of production since before the war, Temprite heavy duty beer coolers are back again to help you make more money. Now is the time! This is the season! Tell your customers

about Temprite. You can now offer 7 new improved models for every type of beer cooling application. Outstanding features include specially shaped stainless steel coils, compact size and patented temperature control.

Write or wire now for details.

TEMPRITE PRODUCTS CORP.

Originators of Instantaneous



Liquid Cooling Devices

45 PIQUETTE AVENUE

DETROIT 2, MICHIGAN

DON'T OVERLOOK THIS FACT!

SPORLAN PRODUCTS
are **BETTER**
for both
Air Conditioning and
Commercial Refrigeration
Installations

and **HERE** is **WHY!**



Only **SPORLAN** Thermostatic Expansion Valves can give you Peak Performance on all installations, because only Sporlan offers you **SELECTIVE CHARGES**. Each charge is designed to fit a definite condition.



You'll Get Peak Performance on every installation you make with Sporlan Distributors. The perfectly designed nozzle and conical button assure even distribution regardless of number of outlets.



SPORLAN Solenoid Valves will give you Peak Performance on all installations too, because the Sporlan Solenoid Coil is so well insulated...so moisture proof, that it defies electrical failure.



SPORLAN Strainers are Peak Performers too, because they are designed better...precision built to closer tolerances, and contain the best materials obtainable.



Only **SPORLAN Catch-Alls** can give you Peak Performance on all installations, for only the Catch-All has a porous molded cylinder. It cannot powder! It cannot pack! It dries the refrigerant to an extremely low end point. A point so low that any remaining moisture is absolutely harmless.



Only **SPORLAN** offers you the **Solenoid Pilot Control**, a patented control that gives Peak Performance on every installation where large solenoid valves are ordinarily used. Cost less than large solenoid valves to buy... only one size and type to stock... cost less than large solenoid valves to install.

Place your next order
with your Sporlan Wholesaler
and get Sporlan throughout.
You'll see why
Engineers everywhere recommend
PEAK PERFORMANCE
SPORLAN PRODUCTS!

SPORLAN VALVE CO.
ST. LOUIS 17, MISSOURI

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ou pay no premium in price for the
premium performance and
exclusive patented features
in Henry Products.

STRAINERS



- Correctly designed. A size and type for every need. Connections from $\frac{1}{4}$ " to $4\frac{1}{2}$ " solder. Screen areas from 3.4 sq. in. to 175 sq. in. Distortion proof flanges on larger models permit removal of screens for cleaning.



Sold by leading wholesalers

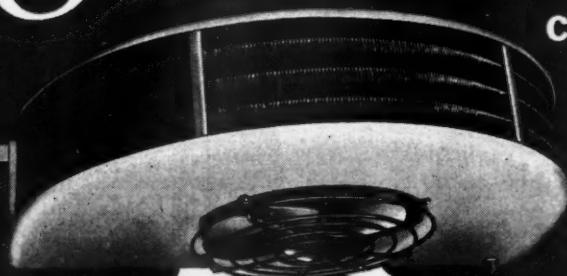
HENRY VALVE COMPANY

Control Devices, Valves, Drifters, Strainers and Accessories for Refrigeration and Air Conditioning and Industrial Applications.

3260 W. Grand Ave., Chicago 51, Ill. • Cable: HEVALCO Chicago

Takes No Storage Space

FROM
A
COOLER



Filterpure

MOUNTS
AGAINST
CEILING
NEXT TO
WALL

HALF ROUND CEILING UNIT

For Walk-ins and Florist Boxes.

Installed on the ceiling adjacent to wall, completely out of the way. Cooler is blanketed with low velocity air, with a relative humidity in excess of 85% thru a 180° arc. Equipped with Air Purification—Built-in Louvres—Built-in Liquid Distributor—Slide Hangers. Made in 6 popular sizes from 260 to 867 BTU per 1° TD. Highly efficient, compact, streamlined.

Sold by Leading Refrigeration Wholesalers

BETZ CORPORATION

HAMMOND • INDIANA

VIRGINIA REFRIGERANTS

"V-METH-L"

Methyl Chloride

**"EXTRA
DRY
ESOTOO"**

Liquid Sulfur Dioxide

**consistently pure
consistently sure**



VIRGINIA *Refrigerants*

West Norfolk • New York • Boston • Detroit

VIRGINIA SMELTING COMPANY, WEST NORFOLK, VA.

Distributors for Kinetic's "Freon" Refrigerants

PAR's *Out Front Again!*

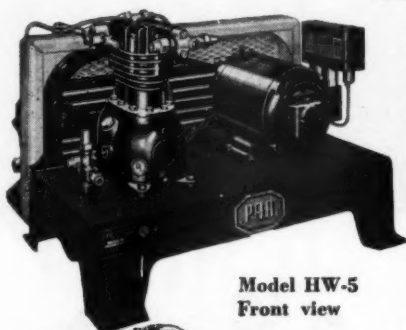
Announcing

TWO NEW WATER-COOLED MODELS
with CLEANABLE CONDENSERS

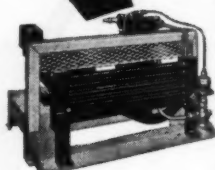


HW-5 $\frac{1}{2}$ H.P. Heavy Duty Unit

HW-7 $\frac{3}{4}$ H.P. Heavy Duty Unit



Model HW-5
Front view



Rear view

Par Models HW-5 and HW-7, $\frac{1}{2}$ h.p. and $\frac{3}{4}$ h.p., water-cooled units with *cleanable condensers* are now in the popular line of Par Condensing Units. These 2 units also feature small over-all dimensions permitting installation in small areas or close places.

Par's "Out Front" again, in providing a wide range of models and sizes for "tailored installations" . . . proper-size, proper-type units that give top performance in economy and efficiency.

See your Par Wholesaler for complete details and specifications on these new Par units and keep an eye on Par for future announcements.

PAR—Condensing Unit line sold exclusively through
Franchised Refrigeration Equipment Wholesalers!

By Comparison — You'll Buy PAR

LYNCH CORPORATION

Par Compressor Division

TOLEDO 1, OHIO U.S.A.

This is the Business End of...

HALSTEAD & MITCHELL

Cleanable CONDENSERS



Seamless Copper Tubes
Brass Headers Machined and Brazed

Service Engineers and commercial users throughout the refrigeration industry are now specifying HM Condensers for replacement and conversion orders. These new HM units combine two features never before obtainable in tube-within-a-tube water-cooled condensers; (1) They're **CLEANABLE** . . . the water tubes are easily accessible at both ends for the spiral cleaning tool to restore the interior water surfaces to

"new-unit" efficiency. (2) A **TRUE-COUNTER-FLOW** relationship is achieved between the coolant and the refrigerant through a unique seamless copper tube-within-a-tube construction that makes obsolete most types of similar water-cooled condensers. Thus, water and space requirements are reduced substantially and a most economical operation is obtained.

JOBBERS in all principal cities carry HM condensers in stock for immediate delivery.



OFFICES: Bessemer Building, Pittsburgh 22, Pa.

DOUBLE-TUBE COUNTER-FLOW CLEANABLE WATER-COOLED CONDENSERS

USE GENUINE
PRECISION-BUILT

FRIGIDAIRE PARTS FOR BETTER SERVICE RESULTS

SEND FOR FREE FRIGIDAIRE PARTS CATALOG TODAY!

Yes, genuine Frigidaire parts and accessories are again in big supply. Let this new Frigidaire Parts Catalog be your introduction to easier service and better satisfied customers. Send for it today, or ask your Frigidaire distributor or factory branch for a copy. See how the wide range of items covers your regular run of refrigeration servicing needs. See why Precision-Built Frigidaire parts are the favorite of experienced servicemen everywhere.

There's a complete stock of Frigidaire needed parts and accessories in 45 distribution centers. In Dayton, the great Frigidaire Service Parts Factory keeps more

than 14,000 different items in stock at all times.

ACT NOW

If you handle refrigeration service, ask for a copy of Frigidaire's new Parts Cat-

alog—64 pages—complete descriptions and prices of 800 most-needed refrigeration parts and accessories. Indexed for ready reference. Convenient order forms included.



You're twice as sure
with two great names

FRIGIDAIRE
MADE ONLY BY
**GENERAL
MOTORS**

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1250 Amelia Street, Dayton 1, Ohio

Please rush my free copy of your new parts catalog—"Genuine Precision-Built Frigidaire Parts and Accessories."

Name

Firm Name

Address

City State

Check your liquid line ...



See for yourself ... **THROUGH THE MUELLER
DOUBLE PORT LIQUID INDICATOR**

**"THE BUBBLES WILL TELL YOU
WHEN THE LIQUID IS LOW"**

The improved design of our liquid indicators is effective assurance against refrigerant leakage around the sight glass. The sight glass is sealed into the forged brass body by a heavy Neoprene gasket which, in turn, is compressed by a packing gland, which forces the pliable gasket along the sides of the glass and produces a perfect seal.

Mueller Brass Co. Liquid Indicators are made in a complete range of styles and sizes. The seal cap type may be installed where light conditions are favorable. Where the light is poor, we recommend the use of our double port liquid indicators illustrated here. By flashing a light through one port, the exact condition of the refrigerant may be determined through the other port.

The new design of the compression gland permits the use of standard wrenches for tightening.



**Double Port
Liquid Indicator**

MUELLER BRASS CO.
PORT HURON, MICHIGAN



From **EVERY** *Angle!*

No dilution-of-refrigerant worries with THAWZONE. Only 1/8 of an ounce required for each pound of refrigerant . . . half that for hermetics.

It costs little to use THAWZONE. A pint container costs \$10 and treats 128 lbs. of refrigerant. That's less than 8c for each pound of refrigerant in the system. Compare!

If it had been nothing but an anti-freeze, THAWZONE would never have

been marketed. It's a dehydrant . . . destroys water chemically. And neutralizes acid too!

Time-tested THAWZONE is not new . . . 10 years and no change in formula . . . 275 wholesalers (not counting their branches) . . . many service engineers, ice cream companies, manufacturers . . . for the old or new refrigeration system . . . sales soaring!

HIGHSIDE CHEMICALS CO.

195 VERONA AVE.

NEWARK 4, N. J.



*TRADE MARK REG. U. S. PAT. OFF.

Are You
a Baby
Sitter?



You are - with
Manual Defrosting

But
With

THERMOBANK

by
KRAMER

*You have the Only Completely
Automatic System that keeps Coils
frost-free at Any Temperature
without...*

LABOR
ATTENTION
ELECTRIC HEATERS
BRINE OR WATER SPRAYS

Write for Bulletin R-124

KRAMER TRENTON CO. Trenton 5, N. J.

To Meet Your
Refrigeration needs

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REG. U.S. PAT. OFF.

DU PONT

METHYL

CHLORIDE

99.5% PURE DRY UNIFORM

DU PONT METHYL CHLORIDE SPECIFICATIONS

Purity.....	99.5% Methyl Chloride
Moisture.....	.0008% by wgt. max.
Acid as (HCl).....	.0001% by wgt. max.
Residue on Evaporation.....	.001% by wgt. max.
Boiling Range (760mm).....	24.6° to 23.6°C.
Color.....	Water white, clear

District Sales Offices: ELECTROCHEMICALS DEPT., Baltimore, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, El Monte (Calif.), New York, Philadelphia, Pittsburgh, San Francisco; And AMMONIA DEPT.: Offices in New York, Philadelphia, Chicago, St. Louis.



BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

HIGH PURITY Du Pont Methyl Chloride will meet your refrigeration requirements.

ORDER WHAT YOU NEED—NOW! It's available from wholesalers' stocks in principal cities.

YOU'LL WANT THIS NEW BOOK—

72 pages of practical information for Refrigeration Engineers.

Physical, chemical, physiological and refrigerating data... complete tables of thermodynamic properties... engineering information... handling and servicing methods. FOR A FREE COPY, WRITE: E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Del.



Time in Du Pont "Cavalcade of America" Monday nights—NBC coast to coast

DU PONT METHYL CHLORIDE

Electromatic

Quick Couplers

- SAVE TIME
- FINGER-GRIP CONTROL
- EASY TO HANDLE



Simple to use . . .

A twist of the wrist and the connection is tight!

Electromatic Quick Couplers are really Quick as the name implies. Exclusive Finger-Grip Surface allows firm grip with very little chance of slipping—eliminates the need for using tools. Ideal for use with Electromatic Compar Charging Lines. Also time savers when used with gauge, pressure or vacuum lines to connect with valves, evaporators, condensers, gauge sets, etc.

Available in $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{2}$ and $\frac{3}{4}$ in. SAE flare sizes.

Ask Your Wholesaler

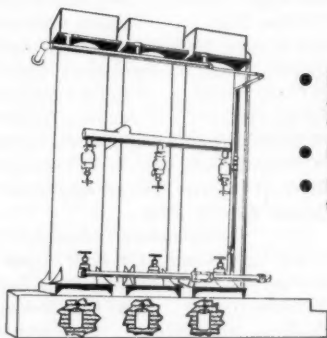
Electromatic

2100 INDIANA AVE. CHICAGO 16, ILL.
CANADA—2025 ADDINGTON AVE. MONTREAL

The CSCO AQUATROL

A Simple But Very
Efficient Device Designed To

System DESTROY ALGAE



- Helps to Prevent Further Accumulation of ALGAE, SLIME, SCALE and ENCRUSTING MATTER on Heat Exchange Surfaces
- Helps to Increase Volume of Production
- Helps to Decrease Percentage of Production Cost

In Air-Conditioning Systems, Cooling Towers, Spray Ponds, Cooling Water Circulation Systems, Air-Wash Systems, Barometric Condensers, Cooling sides of Evaporating Condensers, Ice Plants, Vertical Condensers, All Heat-Exchange

Systems, Cleaning Roots out of Pipe Lines.

AQUATROL consists of chemicals in a container which is to be placed in those parts of your cooling system affected by ALGAE, SLIME, SCALE AND ENCRUSTING MATTER. Water flowing through the container is treated with chemicals which are so perfectly balanced they convert the above mentioned destructive forces into precipitates which collect in the bottom of the cooling system and are easily removed. The flow of this chemically treated water may be regulated to avoid unnecessary waste.

CSCO AQUATROL eliminates the daily dosing of water with compounds . . . and needs no further attention other than to place new tablets in the device as needed. SAVES TIME! SAVES MONEY! SAVES LABOR! Protects and prolongs the life of equipment and helps the equipment give more efficient service!

AQUATROL Outfit for small operation, \$15 f.o.b. Birmingham.

For larger operations, \$25 f.o.b., Birmingham

CHEMICAL SOLVENT COMPANY

3005—16th Street North

Birmingham, Ala.

CROSLEY

Twice Tested

REFRIGERATION PARTS

for general replacement



*** IMMEDIATE
DELIVERY**
from your nearest
CROSLEY
DISTRIBUTOR
listed to the right

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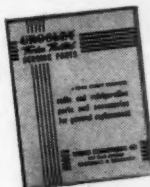
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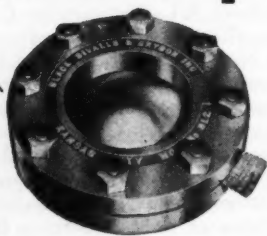
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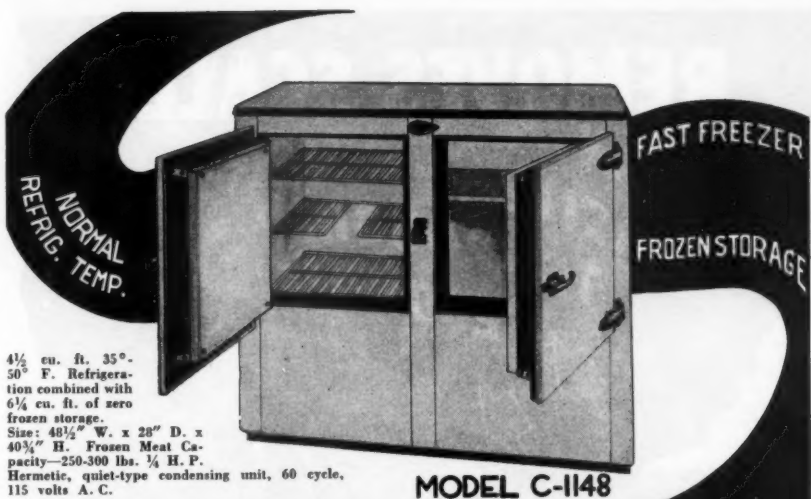
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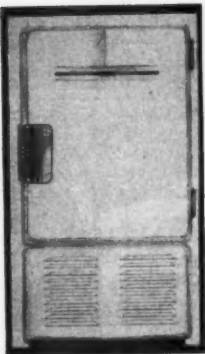
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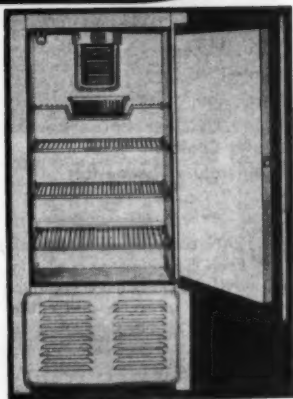
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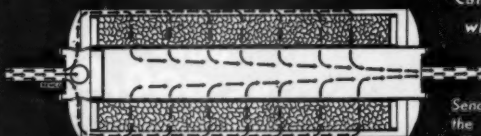


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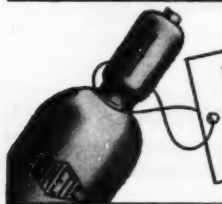
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» IN THIS



ISSUE «

INDIVIDUAL small defects in a household refrigerating cabinets or systems seldom have sufficient affect on the overall operation to be noticed and often continue over long periods of time without receiving any attention from the owner or serviceman. Add two, three or more of these minor defects, however, and you have what amounts to a major defect or, as M. G. Horwitz terms it, "Cumulative Overload." In his article appearing on page 35, Mr. Horwitz cites specific examples of what constitutes cumulative overloads in the hermetic unit.

THE article appearing on page 39 entitled "What Kind of a Businessman Are You?" provides the contractor and service operator an opportunity of checking his business policies with the recommendations of a well known business management firm. This firm was recently employed by The Northwestern Roofing, Siding and Insulating Contractors Association to make a survey of its members' management problems and to make recommendations for improvement. The recommendations resulting from this survey seem equally applicable to the refrigeration field.

LONG distance servicing of commercial equipment is a cinch now—no trouble at all. All you need do is pick up your service kit, a drum of gas and the spare parts you need, step into your airplane and take off. A service call in the next state will take no longer than one on the other side of the city. A service firm in Missouri who uses two planes in its installation and service, finds them useful also in sales work. Read "Operation Ice Box" on page 43.

THE results of a recent survey made by the Refrigeration and Air Conditioning Guild of New York, reveal the aver-

age prices being charged for service work and various classes of repair jobs. The average prices charged are listed on pages 45 and 46.

ONE method of evacuating SO₂ and disposing of it on the customer's premises is described in one of the Service Pointers this month appearing on page 47. There is nothing new about the method, since it was suggested some years ago by one manufacturer who made and sold an evacuator using the same principal. This article, however, provides a method of building the device in the shop.

QUESTIONS and Answers this month is a transcript of part of the Information Please sessions during the annual convention in Cleveland. This part deals entirely with the subject of self service display cases. Other subjects discussed will be included in following issues.

THE Bureau of Census, Department of Commerce report on shipments of air conditioning and commercial refrigeration for the fourth quarter of 1947 shows a 33 percent drop for air conditioning, but no appreciable change for other classes of equipment.

A complete report on the very successful Educational Exhibit and Conference, jointly sponsored by RSES and REMA in San Francisco recently, appears on page 54.

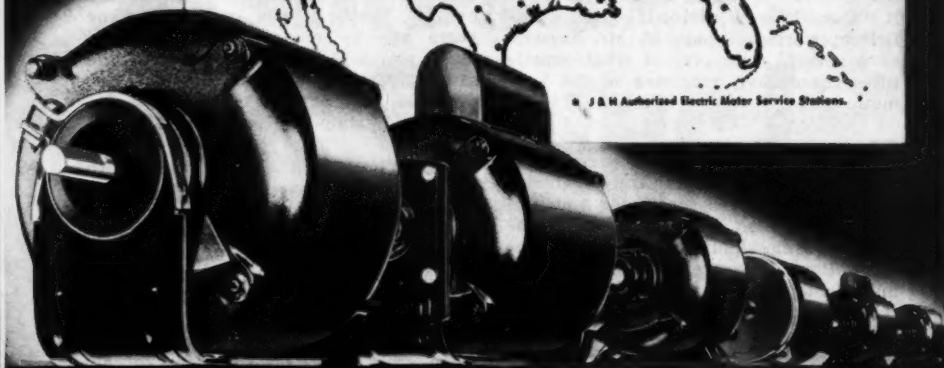
COVER

THE importance of quick and efficient service is emphasized by the large quantities of meat stored in the meat locker pictured on this month's front cover. To provide fast service over a widely spread territory, one service firm in the western states has turned to the use of a plane as a mode of transportation. See the story on page 43.

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Cumulative Overload

With Special Reference
to the Sealed Unit

By M. G. HORWITZ *

The term overload as used herein denotes a condition in a system which causes a thermostat, relay, fuse or other electrical device to "open" and cut off unit operation.

Specific and Cumulative Overload

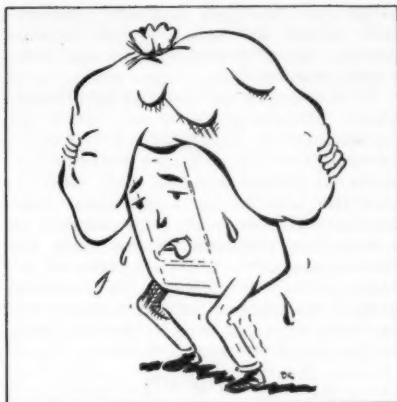
THE following is a basis for establishing the distinctive differences of two types of overloads; the specific and the cumulative.

Overloading and the subsequent overload in general are a common phenomena, and all servicemen are familiar with it. The most common causes of overloading in the conventional units are: Defective or overheated motors, stuck or sticky compressors, abnormally high ambient temperatures, high head pressure, and, in general, electrical breakdowns such as shorts, defective wiring and improper voltage. These causes are specific. That is, any specific one would be sufficient to cause an overload. This type of overload develops rapidly.

The less common causes of overload in the conventional systems are improper unit air circulation, food overload, under-capacity or under-sizing of unit, heat leakage due to deteriorated cabinet or wall insulation and improper usage. These causes are contributing overloads. That is, none alone are usually sufficient enough to cause an electrical overload. Where no ONE specific cause can be attributed to overload, it is usually due to a combination of any or all of the lesser causes. In other words, a cumulative overload. This type of overload develops slowly.

The outstanding symptomatic differ-

* Member of the District of Columbia chapter, Refrigeration Service Engineers Society.



ence between an overload caused by a specific defect and a cumulative one, is that in most cases the cumulative overloading generally overheats the unit in its entirety.

Service

As can readily be seen, service on a specific overload is simplified by the fact that a definite, single defect exists which lends itself to actual repair. Servicing cumulative overloads, however, entails a bit more headwork than handwork—as several minor defects are involved and usually no specific repair is in order.

Cumulative Overload in Sealed Units

The popularity of the sealed unit has somewhat reversed the popularity of the specific overload. It is just as common today to find as many cumulative breakdowns in the sealed unit as there were specific breakdowns in the conventional type. In addition, cumulative overloading in the sealed unit is becoming more common and at the same time, more complex from day to day.

The complexity lies in the fact that in the conventional model the essential parts were individually placed and accessible, simplifying diagnosis, while the sealed unit has created obstacles toward this end and in addition, produced entirely new symptoms peculiar to itself.

Being primarily concerned with cumulative overloading and in view of the misleading symptoms this condition creates in the sealed unit, it is essential that proper diagnosis is made as early as possible. Too much permanent damage is

caused by improper diagnosis, particularly where the sealed system is concerned—as extensive repairs are ordinarily prohibitive.

To illustrate a not unusual occurrence, many manufacturers receive units for replacement or repair, tagged “defective, motor burned up, moisture, locked rotor, stuck or frozen pistons, etc.”—only to find the unit in good condition upon testing. The trouble was actually a cumulative overload, which took the form (in severe cases) of some of the above mentioned defects. In all probability, the proper time was not taken for more exacting tests in the first place to determine the actual cause.

Multiplicity

The basis for the development of cumulative overload lies in the multiplicity of minor defects. That is, as stated before, it is necessary for several defects to arise, and, over a period of time create together a cumulative overload. It is, therefore, clear that where only one cause or defect is responsible for the condition, it is a specific overload—not cumulative.

An example to illustrate this point is mildly high head pressure. This head pressure, a few pounds over what “the book” calls for, is an elusive one. It can’t be caught. Purging imaginary air or non-condensables does not help, as it only requires re-charging for proper refrigeration and then you are back to that mildly high head pressure again.

Ascertaining that there is no specific cause for this head pressure to exist, it would be quite safe to attribute the condition to cumulative overloading—multiple minor defects—and allow the head pressure to remain as an “acceptable” one (i.e.) “acceptable high head pressure.”

It was actually the multiplicity or combining action of the defects, such as restricted unit air circulation, poor door seal, high ambient temperature, excessive use of ice cubes, etc., that caused the “acceptable high head pressure” to exist. Multiplicity, therefore, is the basis for cumulative overloading.

Multiple Causes (Internal and External)

Very few internal defects are the cause of cumulative overload, as most internal trouble is of a specific nature

requiring a specific remedy. However, there are some internal abnormalities that do at times contribute to a cumulative overload. These defects are usually temporary in nature—that is, they appear most often when other external causes are primarily responsible for the cumulative overload condition, and usually subside when the external defects are eliminated.

The internal defect, however, may at times create a condition similar to “the straw that broke the camel’s back.” For example—a given system was originally in perfect working order until age rotted the insulation, dust collected on the condenser, the control was kept on the coldest position, the ambient temperature increased, excessive oil was carried or pumped out of the compressor into the system due to sustained overheated operation, and then, to top it off (the last straw) the development of acceptable high head pressure. Result—complete overload.

Another temporary internal defect contributing to a cumulative overload, although rare, is the “transient” clot or restriction. The fine particles or particle flowing through the system and, for a short period, partially plugging up that expansion valve, or capillary tube, then off on another joyride around the system. This type of internal defect, however, is not usually caused by general cumulative overloading but may nevertheless act as “the last straw” in causing a complete overload.

In general, it is the external defect which accounts for most cumulative overloading. The most common probably is high unit temperature due to restricted air circulation.

Restricted air circulation can be caused by any change at all in the original system not conforming with the accepted standards, methods or service as practiced in present day refrigeration. And elimination of high unit temperature in actual service may consist of simply cleaning a dirty condenser and oiling a motor (if of the conventional type) to the harassing job of removing paper bags which were blocking a convection type condenser, the locating and replacement of air baffles, re-setting the relay in a more favorable physical position, adjust the control, move the cabinet, removal or replacement of the cabinet apron (unit cover) reducing vibra-

tion, balancing the unit, purging, charging, adding oil, or the complete undoing of a prior mechanic's or owner's self-service, ad infinitum.

Another common external defect, particularly in sealed units, and becoming more popular every day, is the mistaken attempt to use an ordinary household box for low temperature work. It is bad enough to find a six cubic foot box storing nine cubic foot capacity of food, without the additional burden of frozen food products. Perpetual ice cube making is another fault. Irregular defrosting and the accumulation of two, three and four inches of ice is another. So is the continuous attempt to make ice cream without cream or some such idiocy.

Each one is bad for the system in itself. Several, at a time and we have cumulative overloading. Many at the same time, and cumulative overload—failure.

Effects

As stated originally, cumulative overloading develops slowly. It is not ordinarily an overnight process. Many systems have been known to operate for months and even years in this condition. That this is a tribute to skilled manufacturing goes without saying.

Practically speaking, it is what happens after—not during—manufacture that counts, and the older the unit the less it can "take." For instance, acceptable high head pressure, an internal defect caused by cumulative overloading is quite possibly as destructive to a system in the long run as any specific defect is in a shorter time. Yet, acceptable high head pressure in many instances is dealt with as a specific defect.

As cumulative overloading is generally a long, drawn out latent affair, it is natural to assume that some degenerative processes take place in the system. The mere fact that the condition is latent in the early stages, and that it is uncommon for most servicemen to come in contact with it during this period, makes it all the more critical. And, it is during this period that degenerative processes are established.

Although in many instances burned out motors, continuous relay replacements and excessive service calls may be due to a specific defect, in just as many cases it could also be due to or

caused by the last stages of cumulative overloading. It is of the utmost importance, therefore, to diagnose and determine the exact cause at the earliest possible time.

Diagnosis

There are certain basic symptoms connected with a cumulative overload. As mentioned before, the outstanding one is usually overheating of the unit in its entirety. There is, however, a drawback to this symptom. It requires the presence of the serviceman as soon after the actual overload as possible to detect this condition. In many cases, by the time the serviceman has arrived, the unit has cooled to room temperature and nothing specific as far as "touch" is concerned can be derived at this point. In addition, the unit then may very well be ready to resume operation until the next overheating and subsequent overload.

Another common symptom is the inability at times to obtain a clear description of the complaint from the user. Complaints from one user, for example, may contain several or all of the following: "Does not freeze right—runs too long—high electric bills—no response to control adjustment—excessive vibration—too much ice on evaporator in very short time—unit throws heat into room—and, the common, something wrong with it."

Naturally any of these complaints can be caused by a specific defect, but to repeat and emphasize: where a specific defect is NOT the cause, look for cumulative overloading.

In general service it is usual to check or "sight and sound" the unit. Sight and sounding the unit is nothing new. It means looking at and listening to the unit's operation. In addition, the "touch" method is employed, which means running the fingers or hand over the various parts to get the "feel" of the system. All of these methods are basic, particularly where gauges cannot be used and other testing instruments are not called for or are not readily accessible at the time.

In other words, we are "sizing" up a job, getting the picture as a whole. In time these methods become automatic—second nature and are of the greatest importance in diagnosis.

As cumulative overloading is somewhat latent in its early stages, detection is difficult—but by thoroughly employing the basic methods of diagnosis, the condition may more readily become apparent. Diagnosis or “trouble shooting” does not only mean finding out what is causing the symptom, but finding out what is causing the cause that is causing the symptom—and correcting it as well.

An Example

In many instances, too, it is quite possible to find the symptom being the cause of the defect, and this is particularly true of cumulative overloading. An example of this is the “burned out” unit sent back to the factory for replacement. The unit burned out because of overheating. The overheating, due to continuous tripping of the overload. The overloading was due to several minor defects. A cumulative overload had run its course.

The actual records of diagnosis and remedy for this unit, taken at an earlier date, indicated that the system was being serviced at that time for a specific defect—replacement of relay. The fact that the unit was overheated in its entirety, the fact that the control was kept continuously at the “fast freeze” position, the fact that the evaporator was incompletely frozen due to displacement of oil, the fact that the condenser was externally clogged, the fact that a food overload existed and the fact that defrosting was a “when they thought of it” procedure, was completely overlooked or minimized by the serviceman. Here was CUMULATIVE OVERLOAD staring him in the face and he couldn't sight, sound or feel it! The relay was replaced instead!

The complete breakdown cycle began and finished within a period of six weeks.

Remedial Measures

Corrective methods used to partially or completely overcome cumulative overloading vary with the individual system. Regardless of the fact that a given unit was manufactured under control on the same day in the same way several hundred others were, each unit develops its own characteristics or personality once it leaves the plant. The

basic reason for this is that it no longer is under the identical control with the others, as they were during manufacture.

This is proven by the fact that although a certain make or model of refrigerator will become notorious for developing a common defect such as worn wrist pins when in use for some time, there is no guarantee that the wrist pins will all wear out prematurely at the same time or on the same day. Generally speaking then, remedial measures, methods or service must rest with the individual serviceman.

Where cumulative overloading is concerned, there is no hard and fast rule. For instance, many servicemen may suggest the removal of ice trays for several days to reduce unit operation. Others will re-set the control to a warmer position and halve the amount of water used in the trays.

At times it may be necessary to either lengthen or shorten the interval for defrosting. Unit covers, doors or aprons may be removed to increase the air circulation and lower ambient unit temperature. It may be necessary to rebaffle a unit entirely to conform with an unexpected or unorthodox location. Door gaskets are replaced, relay points are cleaned, food overloading is discouraged, and removal of the unit to a more desirable location may be in order. Sometimes an overnight “vacation” and a fresh start may help to temporarily overcome a cumulative overload.

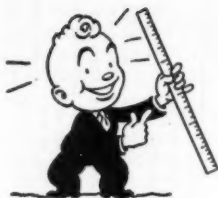
The installation of fusesats or fuse-trons may be indicated or heat-treating an evaporator to dump excess oil may be needed.

Just because So and So's cabinet sweats because the insulation had deteriorated, does not mean that the other cabinets sweat for the same reason. The other fellow may be burning a 200-watt bulb inside his.

Then, again, it may be the customer that needs treatment.

★ ★ ★

COLD spillage due to opening a front-opening home freezer amounts to only 1/3 of an ice cube or 11.75 Btu's. according to calculations made recently by Wilson Refrigeration, Inc. The figures are based on one complete air change when the cabinet is half filled with food.



What Kind of Businessman Are You?

Measure yourself with the yardstick of
a well known business management firm

WHEN business owners or executives are dissatisfied with their profit picture, they have a habit of falling back on two stock formulas. One is to push sales. The other is to cut prices.

Both are intended to stimulate volume. There is almost a blind faith among businessmen that greater volume will cure any profit ailment.

Dr. Charles Reitell of the management engineering firm, Stevenson, Jordan & Harrison, Inc., is telling 1,000 members of one industry that a more basic solution to their profit problems is better management. To prove his point, he is using facts gathered during a six-month survey of this particular industry. The members of the industry are the Northwestern Roofing, Siding and Insulating Contractors Association and are contractors who supply roofing, siding, doors, windows, screens and insulation for the maintenance of all types of buildings.

This is the first time a trade association has employed the services of an outside agency to survey the management problems of its industry and put the findings at the disposal of all its members.

The management problems of this group of contractors so closely parallels those of Refrigeration Contractors, it is felt the same criticisms and recommendations could be profitably applied to the refrigeration men.

Other industries will undoubtedly be interested in many of Dr. Reitell's conclusions. "For it is probable," he states, "that impartial investigation of other industries, especially those made up largely of small businesses, would reveal a somewhat similar condition of unbalanced management."

By "unbalanced management" Dr. Reitell means that the selling function has received major emphasis from this

industry's owners and managers, while the management function has been grossly neglected. These contractors are advised to set up better accounting procedures. Many of them do not know their true costs and hence cannot determine accurately their profits.

Another point which is being stressed is the relation between prices and volume. "Reducing prices in the hope of increasing volume will put many businesses on the rocks in the next few years," predicts Dr. Reitell. "What many executives do not realize is that a price cut of 10 per cent requires a volume increase of over 20 per cent if the profits are to be kept at the same level."

The following summary is taken from Dr. Reitell's report:

Cost Accounting

Too many contractors do not keep accurate cost records. Some records, though complete, are misleading. Specific weaknesses are:

Overhead costs are not accurately determined.

Cost cards do not record correct labor cost because idle time is not included.

Costs of materials are not figured accurately.

Provision is not made for charging, shrinkage, breakage, theft and wastage.

Truck costs are figured variously, and often erroneously.

Recommendations on Cost Accounting

Set up uniform accounting procedures for the entire industry.

Determine accurately direct costs and overhead costs.

Keep a record of costs and profits for each product handled. Weed out un-

How Good a Business Man Are You? Rate Yourself!

THE LEADERSHIP PRINCIPLES	SUPERIOR		AVERAGE		INTERIOR		
	10	5	10	5	10	5	
I. BUSINESS DECISIONS	1. Decisions rest upon facts not guesses. 2. Pertinent information at hand as needed. 3. Facts cover market, sales, costs, labor and industry.	10	5	1. Facts determine decisions but facts are inaccurate. 2. Information slow, late and inadequate. 3. Unreliable costs and sales data.	5	1. Decisions not based upon facts. 2. Plays hunches.	0
II. ORGANIZATION	1. Clean cut organization of sales, mechanics and office. 2. No over-lapping of responsibility. 3. Promotes organization meetings.	10	5	1. A slight resemblance of organization. 2. No definite responsibility. 3. Occasional meetings with personnel.	5	1. Topsy-turvy - no organization. 2. Confusion of work. 3. No meetings of personnel.	0
III. PLANNING - PROFIT DETERMINATION	1. Plans made: (a) for year (b) month (c) week. 2. Solicits aid of mechanics & salesmen in plans. 3. Operates under a budget.	10	5	1. Irregular, spasmodic planning. 2. Plans by himself. 3. No budget.	5	1. No planning whatsoever.	0
IV. ANALYSIS OF MARKETS	1. Periodic market analysis showing potentials. 2. Profit analysis by products and volumes. 3. Fully studies new products and territories.	10	5	1. Inadequate knowledge of market conditions. 2. No profit-volume information. 3. Plunges into new products and territories.	5	1. Lacks knowledge of markets. 2. No volume and profit measurements. 3. Takes blind risks - new products and new territories.	0
V. SALES EFFORT	1. Sales effort analyzed and directed. 2. Gives cooperation to salesmen. 3. Sales training and guidance.	10	5	1. Weak direction of sales effort. 2. Salesmen left to "work on their own". 3. No organized sales training.	5	1. No guided sales effort. 2. Weak sales organization.	0
VI. LABOR RELATIONS	1. Knows dishonest contractor means dishonest employees. 2. Low employee turnover. 3. Builds men.	10	5	1. Makes questionable consumer deals and employees know it. 2. Rules employees by authority. 3. Employee turnover difficulties.	5	1. No labor relations. 2. High turnover. 3. Deceit and sharp bargaining.	0
VII. COMPENSATION PLANS - INCENTIVES	1. Builds successful compensation and incentive plans to meet his own business. 2. Enjoys participants cooperation in plans. 3. Maintains quality incentives.	10	5	1. Definite compensation and incentive plans but not maintained. 2. No participation of employees in plans. 3. No quality bonus.	5	1. No intelligent compensation plan or sound incentive plan.	0
VIII. COSTS AND RECORDS	1. Adequate, simple, complete costs. 2. Establishes standards. 3. Costs by: (a) Volume (b) Products	10	5	1. Inadequate cost procedures. 2. No tie-in of costs with books. 3. No costs at various volumes.	5	1. No costs. 2. Operates by blind hunches.	0
IX. CUSTOMER RELATIONS	1. Excellent service to customer at all times. 2. Active participation in community improvements. 3. Service with a smile.	10	5	1. Service only to prevent customer complaint. 2. Some community interest. 3. Little thought to his permanency in community.	5	1. Service neglected. 2. No community interest. 3. Cheats the customer.	0
X. RELATION TO YOUR TRADE ASSOCIATION	1. Takes active part in trade association. 2. Active member in local Council meetings. 3. Maintains fair practices and Code of Ethics.	10	5	1. Non-interested member of trade association. 2. Pays dues and that is all. 3. Slight interest in local Council meetings. 4. Believes in "Let George Do It" philosophy.	5	1. Not a member of trade association and does nothing but criticize their efforts 2. Refuses to maintain fair practices and to operate under Code of Ethics. 3. Gives no benefits to the industry and derives none.	0
SCORE	TOTAL	100	TOTAL	50	TOTAL	0	

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profitable lines and push those capable of returning a profit.

Apply standard direct costs to each job. Apply standard overhead costs to each month's operations.

Budgets

Set annual budgets, broken down into months and covering:

- Sales by product lines.
- Costs, both direct and overhead.
- Profits.

Profit and Volume

Price-cutting is one of the weaknesses of the industry. Many of the price-cutters are not making a profit. Generally,

the contractors maintaining an adequate price structure are enjoying satisfactory profits.

Often a contractor will cut the price, hoping to increase his volume by the same amount and so maintain his profit level. However, a price-cut of 10 per cent usually requires a volume boost of 20 per cent or more in order to keep profits where they were before.

Unless a contractor is prepared for a profit decline or can count on an adequate volume increase, he should not resort to price-cutting.

Instead of price-cutting, the following are recommended:

Greater value to customers.

Do you lean to the right or left

Constructive Competition Builds You and Your Industry

Contractor:

1. Sells at a profit.
2. Maintains high quality workmanship.
3. Uses materials that meet and often beat specifications.
4. Alert in developing improved new products, both in design and method of application.
5. Leans backwards in building the reliability factor in the community (strong public relations).
6. Advertising never points adversely to competitors or to their products.
7. Never a two price dealer. Always the same price to all.
8. Provides compensation sufficient to build among employees a high regard for the company and the industry.
9. Always works from a plan and thus pre-determines fine operations throughout his company.
10. Shares the results of increases in profits with employees and thus builds goodwill in his company.
11. Boosts the industry and his trade association.

Destructive Competition Kills You and Your Industry

Contractor:

1. Sells below cost.
2. Cheats in application.
3. Uses inferior and below specification materials.
4. Sells any kind of products at "rummage sale" prices and doesn't keep abreast of new products.
5. Operates on the principle: Purchaser beware — buyer be damned.
6. Advertises by hitting at competition and thus pulls down level of whole industry.
7. Sells on basis of price deals, sample house rackets, etc.
8. Low and insecure compensation, giving employees a low and negative regard for the company and the industry.
9. Lives from hand to mouth. No plans, no standards and no stability.
10. Never gives any thought of building goodwill and seldom has any profits to divide.
11. Ridicules trade association efforts and feels the industry is made up of cheats and tells others this adverse story.

Better servicing.
Reduction of costs and overhead through increased efficiency.
Accurate estimating on each job.
Improved buying practices.
More economical handling of materials and labor.

Reliability

This is an industry which must set its own standards of quality and reliability. The customer often is not able to judge whether materials and workmanship are good or sub-standard.

This is a job for the industry's trade association, for the local groups and for the individual contractors. Publicity for dishonest practices and continual emphasis on ethical dealing are recommended.

Compensation Methods

Methods of paying personnel, especially salesmen and mechanics, vary widely. Recommended that sounder compensation plans be worked out, based on successful experience within the industry. Key to any sound plan is a basic wage plus incentive pay.

Industrial Relations

Recommended that many contractors put their industrial relations on sounder

and more profitable basis. Specifically these features:

Stabilize employment throughout the year.
Labor turnover should be reduced.
Provide incentive pay so as to encourage high quality work.
Build better morale among employees of each company and throughout the industry.

Concentration vs. Dilution of Efforts

Many contractors are making the mistake of diluting their efforts by spreading out into new territories and by adding new products. Both practices are likely to raise overhead costs and create losses.

Recommended that operations be kept within 30 miles of home office, and that market analysis be made before new lines are added. Work home territory intensively before setting up branch offices.

Self Analysis

A self-rating chart is included by which each contractor can judge his own management practices as "Superior"—"Average"—or "Inferior." Try rating your own management.

Book Review

"Household Electric Refrigeration," by John F. Wostrel and John G. Praetz. 458 pages. Published by McGraw-Hill Book Company. Second edition, revised. First edition was published in 1938. Price \$4.50—for sale by Nickerson and Collins Company, 433 N. Waller Ave., Chicago 44, Illinois.

No radical changes in the general design of household refrigerators and of their controls, or in the methods of servicing them have been introduced since the first edition of this book, consequently only refinements have been introduced in many of the new refrigerators. Revisions made in this book amplify the mechanical details and service instructions for some of the refrigerators introduced since the original printing.

The book provides descriptions and illustrations of many popular makes of machines, showing both the entire systems and details of parts. It emphasizes

the practical points of construction and operation so that the reader can handle the type machine described. Numerous charts and tables provide reference information which aids the reader in practical use of the book. Oil and refrigerant data on many open type machines for the years up to 1937 is provided.

★ ★ ★

CANADIAN OUTPUT

OUTPUT of domestic electric refrigerators in Canada in February amounted to 9,839 units compared with 10,244 in January and 8,272 in the corresponding month last year, according to the Dominion Bureau of Statistics. Imports of 630 units—domestic or store type—were higher than in the two previous months, but otherwise were the lowest since January 1946. Exports in February totalled 476 units compared with 99 in January and 263 a year ago.

Operation: "Ice Box"



Stanley L. Backus, chief refrigeration engineer of Philips & Company, and the plane used for making emergency service calls all over Missouri.

By RAY L. BURNS

TO most pilots and aviation enthusiasts, "icing conditions" strike a note of fear and something to be avoided. Such is not the case with the pilots of Philips & Company, of Columbia, Missouri. In fact, they try to obtain "icing conditions" with almost every flight. They are builders and operators of locker plants, air conditioning units, and dealers of York Corporation refrigerating equipment. The airplane, owned by Perry Philips, himself, is used for doing hurry-up repair jobs in distant parts of Missouri when speed is essential to the preservation of great quantities of perishable foods.

Philips & Company started in Columbia in 1934 as a radio and electric appliance dealer and has gradually worked itself into one of the larger commercial refrigerating companies in the state of Missouri. With the exception of the metropolitan areas of Kansas City and St. Louis, Philips men cover Missouri like a February frost. They have also made installations in Illinois, Kansas and Arkansas.

Four of Philips & Company's thirty-five employees are licensed pilots. They are Stanley L. Backus, chief service en-

gineer and inspector; Wilferd Zelinski, a former Navy fighter, dive bomber pilot and flight instructor, who now makes more money as a flying salesman; H. K. Zenge, office engineer and service manager; and of course, Mr. Philips.

Mr. Philips uses the Stinson Voyager 150 for sales work in the far corners of his territory and for speeding materials and tools to a rush job. The other pilots use the four-place plane as may be required in their servicing and inspecting of distant locker installations, and when possible, in flying back to Columbia for a week-end with their families.

Obviously not all of the small Missouri towns to which these "flying icers" give service, offer them an airport. But that does not deter the carrying out of "Operation Ice Box". The pilot, having made pre-arrangements, chooses a good-sized pasture field near his job and sets the Voyager down. The customer is usually waiting with transportation to his out-of-order locker plant.

The Company does a minimum of individual and household business. A typical job is to install four or five hundred food lockers for a Farmers Produce Exchange or an individual who has a locker plant built as a business.

Philips & Company, itself, owns fourteen locker plants scattered over the state of Missouri. These are operated through a company-hired manager who rents out the locker at about \$15 each per year. Philips & Company estimates that it costs about \$50 for the construction of each locker excluding the cost of the housing unit, and that the returns from a 500-locker installation should very nearly pay for itself in a period of three years.

Philips have been using the four-place Stinson plane for over a year and have flown thousands of miles to locker installations in nearly all of Missouri's 114 counties. As their advertisements say, "A Philips service man is as close as your phone." Speedy service is an outstanding selling point for this company.

Out here in Missouri, floods are not infrequent and power failures often result in putting frozen food lockers and refrigerating units out of order. Water blocked roads and highways are added obstacles to the repairman. A few months ago, with the Missouri River on a rampage, the Philips plane and pilots really worked overtime. Stanley L. Backus, the chief service engineer and pilot said, "I practically lived in the plane for about three weeks."

Mr. Backus said the routine ran something like this. He would call up the stranded locker customer, and instruct him to be out in a large open field on a certain side of the town; then, after flying there, if the field was too small for landing purposes, he would drop the needed parts to him. Their plane was often the only means of reaching many isolated communities.

Mr. Backus said his company went to considerable expense in getting a welding apparatus small enough and light enough to be carried in the plane. Only then did they find out that the Civil Aeronautics Administration had a ruling which forbade the carrying of any compressed and inflammable gases in any aircraft. Pilot Backus philosophized, "It's a wonder they allow you to carry gasoline."

The chief engineer said that up to the present, he had had no exciting experiences as a "flying iceman." He told about being on service call to a town which did not rate an airport. He had landed in a pasture field on the outskirts and was hitch-hiking a ride into the



Just a few of the 500-locker installation at Crane, Missouri. Philips & Company, of Columbia, Mo. did the job.

town. A farmer came by and offered him a ride on the condition that he be taken for a ride in the airplane. Mr. Backus said he explained to the farmer that his boss and the C.A.A. would not approve, but the farmer argued that if it was safe for the pilot, it was equally safe for him. The refrigeration engineer chuckled, "I had never before realized Missouri's farmers were so air-minded."

During the war years air conditioning did not have the high priority given to the food locker industry. Consequently, this phase of Mr. Philips' business did not thrive as well as his food locker service. But now those once hard-to-get materials and scarce items are being delivered with increasing promptness. In the air conditioning service, Philips & Company have installed most of the units now in use in Columbia.

Mr. Philips is well pleased with the successful usage of the plane in his business. While the plane represents a sizeable investment, it is paying for itself through added business and general convenience to him and his flying employees.

The Guild Makes Study of Service Prices

THE Refrigeration and Air Conditioning Guild, Inc. of New York, made an extensive study during recent months of prices charged for various classes of refrigeration repair work. The results of this study were published in the

Guild News. The study, conducted in the New York area, was extended to Chicago, Cleveland, Buffalo and Cincinnati for the purpose of making comparisons. The conclusion reached by the Guild is that prices charged outside of New York Metropolitan area are generally higher. The complete schedule of the prices published by the Guild appear in the following tables.

SURVEY REPORT ON AVERAGE PRICES .. NORMAL LABOR CHARGE INCL.

DOMESTIC

with 3 months guarantee on work billed only

January, 1948

MINIMUM CHARGE per call	
Inspection and Estim. only	\$ 2.00
MINIMUM LABOR Charge per call	
Up to 1st half hour	3.00
HOURLY CHARGE per man	
thereafter	3.00
BELTS	
Single	3.75
Twin	5.00
COMPRESSORS	
Norge Rollator, Large	40.30
Norge Rollator, Small	40.30
Norge Rollator, Model 1850	34.50
Single Cyl. (Rebuilt)	33.10
Twin Cyl. (Rebuilt)	37.50
Single Cyl. (New)	56.15
Twin Cyl. (New)	61.90
CONDENSER AND RECEIVER	
Combined	32.40
CONTROLS—THERMOSTATIC	
General Electric	23.05
Westinghouse	23.05
Frigidaire	19.60
All other makes	15.10
Pressure Control (Frig.)	19.60
EVAPORATORS	
Norge	42.50
All other makes	38.90
Kelvinator, new	46.80

EXPANSION VALVE	19.45
FAN MOTORS	18.00
FLOAT VALVE ASSEMBLIES	
Frigidaire	24.50
Norge	19.00
All other makes	27.35
Kelv. High Side Float	31.00
Kelv. High Side Float and Cond	37.10
FUSETRONS	2.35
MOTORS	
1/6 & 1/5 H.P. Rebuilt	25.20
1/6 & 1/5 H.P. New or Burnt	39.60
1/4 H.P. Rebuilt	29.50
1/4 H.P. Burnout or New	45.95
STARTING RELAY	
Frigidaire	12.25
Deico	9.35
FREON (F-12) per lb.	5.75
ISO-BUTANE, per lb.	7.50
METHYL CHLORIDE, per lb.	5.75
SULPHUR DIOXIDE, per lb.	5.05
THAWZONE, per oz. ...	1.20

COMPLETE OVERHAULS ... ONE YEAR GUARANTEE

	Box	Unit
Coldspot Sealed Unit	66.00	60.00
Coldspot Semi-Sealed Unit	66.00	49.50
Crosley Sealed Unit	72.00	66.00
Crosley Open Unit	66.00	59.00
Copeland	72.00	66.00
Frigidaire Single Cyl.	72.00	66.00
Frigidaire Twin Cyl.	78.00	72.00
Frigidaire Meter Miser	78.00	72.00
Grunow	78.00	72.00
Gibson	78.00	72.00
G E DR-1	72.00	66.00
G E DR-2	84.00	78.00
G E DR-3	96.00	90.00
G E Junior	78.00	72.00
Hot Point	78.00	72.00
Kelvinator Open Unit	72.00	66.00
Kelvinator Sealed Unit	78.00	72.00
Kelvinator KR Model	84.00	78.00
Leonard Open Unit	72.00	66.00

	Box	Unit
Montgomery Ward Top Mounted	Field Work	
Montgomery Ward Bottom Mtd....	78.00	72.00
Majestic	Field Work	Only
Mayflower	78.00	72.00
Norge Sealed Unit	78.00	72.00
Norge Open Unit	78.00	72.00
Philco Sealed Unit	84.00	78.00
Philco Open Unit	78.00	72.00
Sparton Top Mounted	Field Work	Only
Sparton Bottom Mounted	78.00	72.00
Stewart Warner Uppt Pump	72.00	66.00
Stewart Warner Horizontal....	Field Work	Only
Stewart Warner Instl. New Pump ..	90.00	84.00
Stewart Warner Sealed	78.00	72.00
Trukold Top Mounted	Field Work	Only
Trukold Bottom Mounted	78.00	72.00
Universal Open Unit	78.00	72.00
Westinghouse Top Mounted	72.00	66.00
Westinghouse Bottom Mounted ..	72.00	68.00

SPRAYING \$10.00 to \$12.50

SURVEY REPORT ON AVERAGE PRICES' ... LABOR EXTRA

COMMERCIAL

with 3 months guarantee on work billed only

January, 1948

MINIMUM LABOR Charge	
incl. first half hour, per man.....	\$ 3.50
HOURLY CHARGE, per man	
thereafter	3.50
BELTS	
New	Manufacturer's list
COMPRESSORS	
New	Mfg's list price
CONDENSING UNITS	
New	Mfg's list price
CONTROLS	
Low Pressure	21.50
Low and High Pressure	25.00
2 Temp—Constant Pr.	25.00
DEHYDRATORS	
Up to 6"	9.00
Up to 12"	16.00
Larger	24.00

FUSETRONS	
Each	\$.35
LIQUID INDICATOR	
Each	5.00
REFRIGERANTS	
Freon per lb.	1.50
Methyl-Chloride per lb.	1.50
Sulphur-Dioxide per lb.	1.00
VALVES	
Expansion Valve	20.50
Water Valve up to 1/4"	18.75
Water Valve over 1/4"	37.50
2-way Valve	
up to 1/4"	7.75
over 1/4"	14.70
3-way Valve	
up to 1/2"	8.75
over 1/2"	15.50

EXCHANGE OR REPAIR PRICES

Horsepower	1/5	1/4	1/3	1/2	3/4	1	1-1/2	2
Compressors—Minor	\$24.50	\$24.50	\$29.50	\$34.50	\$42.50	\$49.50	\$59.50	\$69.50
Compressors—Major	29.50	29.50	34.50	49.50	59.50	75.00	85.00	99.50
Motors—Minor	22.50	25.75	28.75	35.00	44.00	49.50	58.50	65.00
Motors—Major	26.75	35.00	39.50	48.00	57.50	67.50	79.50	98.50

SERVICE CONTRACT

up to 3 year old unit	35.00	37.50	40.00	48.00	60.00	75.00	100.00	150.00
3 - 6 year old unit	37.50	40.00	45.50	55.00	70.00	85.00	115.00	165.00
over 6 year old unit	42.50	45.00	49.50	60.00	75.00	95.00	125.00	185.00

ADDITIONAL: \$7.50 for each additional Valve such as Expansion Valve, Water Valve, Two Temperature Valve, etc.

INDUSTRIAL REFRIGERATION & AIR CONDITIONING

PARTS at Manufacturer's list price.

LABOR RATE:—\$3.50 per hour per man (starting when man leaves shop.)

INDUSTRIAL
JANUARY 1948

GAS DOMESTIC

	Part plus Labor		Part plus Labor
Replace Banjo	\$2.50 + \$4.50	Pull low-boy with stove and	
Burner		clean carbon	\$7.00
a. Replace burner	7.85 + 3.00	Replace gas cock	2.25 + 3.00
b. Replace bracket	1.75 + 3.00	Pumped gas line	3.50
c. Replace spud	1.25 + 3.00	Replace gasket on door	list price 3.00
d. Adjust and clean spud	3.00	Replace gooseneck	1.75 + 3.00
e. Adjust finger	3.00	Replace strainer and regulator	7.85 + 3.00
f. Increase or decrease gas	3.00	Replace Fulton	6.25 + 3.00
g. Replace pilot stem	1.25 + 3.00	Pumped water lines	3.50
Replace fitting25 + 3.00	Replace thermostat	9.75 + 3.00
Replace brass flue	3.50 + 3.00	a. Reset thermostat	3.00
Replace dilution flue	5.50 + 7.00	b. Blow out and clean thermo	3.00
Replace flue back	8.50 + 3.00	c. Replace gasket	3.50 + 3.00
Clean carbon	3.00	d. Replace bulb clamps75 + 3.00
Pull box and clean carbon	6.00		

REPLACEMENT OF UNIT ... DOES NOT INCLUDE ANY CONTROLS

One Year Guarantee

UNIT	Price	Installation
UP TO 5 CU. FT.	\$40.95	\$ 7.50
UP TO 7 CU. FT.	47.25	10.00
UP TO 9 CU. FT.	57.75	12.50
UP TO 11 CU. FT.	68.25	18.00

SERVICE POINTERS



A department for the exchange of ideas on new devices and methods of improving service work. Five dollars is paid for each pointer published. Write up your idea today and mail it to the Service Pointer Editor.

firmly pushed into the sink drain—important only on SO₂ machines. The purge line from the machine is attached to the free end of the check valve assembly. The shutoff on the evacuator and the shutoff (back seat) of the unit to be purged are turned off.

REPLACING CONTACT POINTS

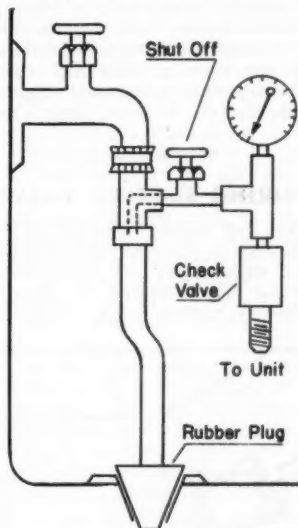
I SAVE old flat iron thermostats because every so often one needs to repair a motor starting switch or some device that needs new contact or switch points and no new parts are at hand. Remove the points from the old thermostat and silver solder or braze them in place on the part to be repaired. These generally last longer than original parts. Submitted by O. J. Paul, Hazel Park, ton, S. D.

EVACUATING SO₂

FACED with the problem of evacuating Norge Rollators in the house, and wishing to avoid the customary hazards of sulphur in the room, dead lawns, and personal inconvenience, we made up the device shown in the sketch. The basis of our evacuator is a washing machine tub draining device. The particular one used was manufactured by the Central Rubber Products Co., but any one on the market can be used.

The hose leading to the washing machine was removed and the hole in the stud tapped $\frac{1}{8}$ " female pipe tap. A small needle valve shutoff was installed in the stud, and beyond the shutoff, a tee was placed. One end of the tee holds a compound gauge (30" vacuum to 150 lbs. pressure is sufficient) and the other end holds a check valve. The purpose of the check valve is to prevent water backing into the refrigeration machine in case of a faulty sink drain.

To use the evacuator, we proceed in this order. The evacuator is attached to a cold water faucet—the siphon arranged is equipped with adapters so that it may be attached to smooth as well as threaded faucets. The tapered rubber plug is



Turn the water on full force and check to see that the sink drain will carry it away without flooding back. Having made sure of the water flow, open the evacuator shutoff. We have found, in our city, the water pressure to be sufficient to produce a 26" vacuum on the gauge. When the gauge shows a reasonably steady vacuum, open the unit shutoff and proceed with the required purging. The check valve assembly will prevent water from getting into the purge tube in the event of a drain stoppage. We usually follow up a sulphur purging with a treatment of Drano or a similar compound to neutralize any acid formation in the plumbing.

Although this idea was fostered by

Norge peculiarities, it can be used on any purging job, and pulls ample vacuum for Grunow work and even for evacuating systems prior to charging. It should be pointed out, however, that vacuum limitations render this device unsuitable for dehydration applications.—Submitted by Russell P. Wilson, Worcester, Mass.

★ ★ ★

A WORKING LIGHT

WITH your Prest-O-Lite torch you have a very useful and bright light—better than electric. By loosening the nozzle slightly using only a little gas, turn nozzle slowly until smoke disappears. If nozzle is too loose in the threads to stay put, place a little stiff wax on them or they may be battered slightly.—Submitted by O. J. Paul, Hazel Park, Mich.

★ ★ ★

REPAIRING SUCTION VALVES

I HAVE had several service calls on open type condensing unit refrigerators that were nearly new and found the compressor not pumping as though it had a broken suction valve. Then when

the compressor was opened, valve and seat were OK—except the valve disc was small for the opening or cage. I figured it had slipped to one side and was unable to seat or tipped up at an angle and rode in that position until the piston was disturbed when the machine was opened.



I took a larger valve disc and ground it so it would fit easily into the valve opening then fluted it with an emery wheel as sketched. Be sure to form grinding burr on same side stamping burr is on valve. This valve stays in place and the open flutes allow the gas to go by. I have had no further calls from compressors fixed this way.—Submitted by H. K. Danielson, Parkston, S. D.



"With all these orders for service—Summer must be just around the corner"

QUESTIONS



ANSWERS

Send Your Servicing and Installation

Problems to the Question Box.

During the several "information please" sessions held as a part of the educational program of the RSES Annual Convention in Cleveland, many interesting questions and answers were given. Most interesting of them are included in the following.

SELF SERVICE DISPLAY CASES

QUESTION: How do you calculate the heat load on an open type self-service case?

ANSWER—By J. H. Spence: That is a question that has been asked from border to border. The open self-service type of equipment, being subjected to wide fluctuations due to the method in which the store manager piles the merchandise for display, and the store temperature which is governed many times by whether the store is located in one of the northern states, with very little heat in the store in the winter time, or whether it is in the southern section of the country where the store is air conditioned. So the best answer as to how to determine the heat load of an open self-service fixture is to follow the manufacturers recommendation.

All manufacturers of open self-service equipment supply installation and service instructions with each piece of equipment and, so far as I know, those instructions give the condensing unit recommendation for that particular piece of equipment. If you will refer to and use the manufacturer's recommendations, there is no necessity whatsoever for your figuring the heat load on open self-service equipment. The condensing unit used under these recommendations is determined by laboratory tests and actual field tests. If the manufacturer's recommendation is followed there is no necessity of burdening yourselves, and wasting time, in trying to determine the condensing unit size.

QUESTION: Should an open type case be hooked on to a machine with a walk-in cooler with coils overhead?

ANSWER—By J. H. Spence: No. An open self-service refrigerator should not be hooked on to a condensing unit that is already connected to a reach-in, or walk-in, or closed refrigeration fixture because your open self-service load conditions and your defrosting problems are entirely different and you should never hook up open self-service equipment where there is a demand for a difference in operating temperature.

For example, let us assume that you are going to have an open self-service refrigerator used for the merchandising of produce, where the desirable fixture temperature is approximately 45 degrees, and you have another open self-service refrigerator where they are going to merchandise dairy products such as milk, butter, cheese, cottage cheese, and products of that type where the desired temperature is 36 or 38 or even 40 degrees. Those two fixtures should not be on the same condensing unit. You should not attempt to control the two with any type of solenoid or back pressure regulating valve, or any of those controls normally used on two or three fixture installations.

QUESTION: A manufacturer of cases will specify what size unit goes on his case, but the unit manufacturers have so many different rated units using the same bodies, compressors, etc. and state that it is a half horsepower, or three quarter horsepower or one horsepower. Some of the manufacturers use a $\frac{3}{4}$ hp. body and step it up to 1 hp. That is alright in normal conditions but when there is an excess heat load, what happens? Some standardization would seem desirable as an aid to the serviceman. We have units to replace in the field, but if the unit comes out with a small body, with this kind of weather it might work, but with 95 or 100 degree weather what have we got?

ANSWER—By J. H. Spence: There is a movement going on in the industry to standardize the electric motor. The load design of the motor determines to quite a degree the Btu. capacity of condensing units. Since electric motors are going to be standardized and be designed so that they are interchangeable, the bolt locations and the shaft sizes will be the same, you are going to find less variation in the compressor body sizes in the future than you have in the past.

Motors Overloaded

In the past a great many condensing unit manufacturers have loaded the motor on the condensing unit up to as high as 185% of full load capacity—some of them to 165% of full load capacity. As the months roll by, you will find that there will be a movement to decrease loading of electric motors and condensing units so that the loading will be within the underwriter's limits or specifications, which is 140% of full load capacity for fractional horsepower and 125% for intricate horsepower motors. We know that practically any electric motor will stand a momentary overload of as much as 200% of full load capacity, but it won't continue to operate. Most motors have been so abused, generally by overloading them, that when peak load conditions come along in the summertime the motors start kicking out on loads and cause a lot of service headaches. There is a movement on, in industry, to eliminate that type of headache.

Now back to the point, which I haven't forgotten, and that is this: You will find that most manufacturers today are not only recommending unit sizes by horsepower but also are stating the Btu. load capacity that a condensing unit should have to match with a particular fixture. So when you have the Btu. capacity, which you can find from the original manufacturer's recommendations, then you can take a condensing unit with similar load conditions at a given suction pressure and use another make of condensing unit. Again it reverts back to my original recommendation and that is, if you don't have the manufacturer's recommendation, seek it out and it will take perhaps just a telephone call or a personal visit and you can get that information.

SHIPMENTS OF COMMERCIAL REFRIGERATION EQUIPMENT

SHIPMENTS of complete air conditioning equipment and components and accessories for air conditioning and commercial refrigeration equipment were valued at \$43.2 million during the fourth quarter of 1947, according to the Bureau of the Census, Department of Commerce. This figure showed practically no change from the \$43.9 million shipped during the third quarter of that year.

Shipments of the major classes of components and accessories remained substantially the same as the preceding quarter. However, shipments of self-contained air conditioning units decreased 33 per cent, from \$9.1 million during the third quarter to \$6.1 million during the fourth quarter, and shipments of ice-making machines decreased 10 per cent, from \$628 thousand to \$564 thousand.

Scope of Survey

This release is based on the activity of 69 manufacturers of components and accessories and complete air conditioning equipment. Estimates were made for a few companies (representing only a small portion of the total industry) who did not submit their reports in time to be tabulated. The data included in the release are believed to represent substantially all component manufacturers and air conditioning equipment producers.

The shipment statistics included in the report apply to equipment actually billed and shipped. These figures are equivalent to completed sales. Complete units delivered on consignment or shipped to a branch warehouse for stocks are not included until such time as they are actually sold. The dollar values shown are the manufacturers' net billing prices, f.o.b. factory. The data for some types of air conditioning and refrigeration equipment have been combined in the table of this report in order to avoid disclosing the operations of individual companies.

The table in this report present information on manufacturers' shipments of air conditioning equipment, and components and accessories for air conditioning and commercial refrigeration equipment. Table I presents summary data on domestic and export shipments.

TABLE I—AIR CONDITIONING EQUIPMENT AND COMPONENTS AND ACCESSORIES FOR AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT; SUMMARY OF SHIPMENTS BY MAJOR CLASS OF PRODUCT, THIRD AND FOURTH QUARTERS 1947

Product	Fourth Quarter 1947 ¹				Third Quarter 1947 ¹			
	Shipments of Complete Units				Shipments of Complete Units			
	Total	Domestic ¹	Export ²	Total	Domestic ¹	Export ²	Total	Domestic ¹
	Number	Value (dollars)	Number	Value (dollars)	Number	Value (dollars)	Number	Value (dollars)
SECTION I—COMPONENTS AND ACCESSORIES								
TOTAL.....	43,245,293	38,535,401	4,709,894	43,858,195	39,574,597	4,283,598	43,858,195	39,574,597
Condensing units.....	279,063	20,648,840	18,080,701	293,238	20,994,951	1,961,679	293,238	20,994,951
Refrigerant refrigerants.....	457	624,011	363	17,643	560,316	49,839	17,643	560,316
Refrigerants except ammonia.....	278,606	20,024,829	17,568,468	292,819	20,434,635	1,911,840	292,819	20,434,635
Air cooled.....	267,037	18,441,080	15,552,598	283,972	16,808,899	1,598,061	283,972	16,808,899
Open type.....	82,000	8,386,209	65,761	117,940	10,456,526	1,512,385	117,940	10,456,526
Hermetic type.....	185,687	8,054,871	8,036,403	168,032	6,332,373	85,676	168,032	6,332,373
Water cooled.....	10,919	3,585,749	9,805	8,847	3,625,736	1,851	8,847	3,625,736
Compressors and units.....	173,806	9,416,922	8,262,350	159,431	8,929,380	313,779	159,431	8,929,380
Refrigerant refrigerants.....	1,377	2,734,402	1,082	672,092	2,267,009	797,517	1,377	2,267,009
Refrigerants except ammonia.....	172,519	6,682,520	5,959,566	158,458	6,062,371	84,297	158,458	6,062,371
Centrifugal refrigeration machines.....	80	2,210,011	81	120,834	2,086,789	435,498	80	2,210,011
Heat exchanger.....	1,267	10,960,522	10,103,164	896,357	11,847,075	889,004	1,267	10,960,522
Evaporative condensers.....	26,075	4,946,826	1,131	154,628	1,950,618	440,319	26,075	4,946,826
Unit coolers.....	2,076	1,024,767	2,853	32	1,304,847	3,343	2,076	1,024,767
Refrigeration.....	25,881	2,064,470	2,150	4,082	1,402,847	138,216	25,881	2,064,470
Other heat exchanger equipment ³		5,333,459	5,050,677	28,133	3,181,006	302,103		5,333,459
					5,242,544	293,532		
SECTION II—SELF-CONTAINED AIR CONDITIONING UNITS AND ICE MAKING MACHINES								
Self-contained conditioning units.....	9,891	6,105,502	8,022	15,854	9,094,060	1,184	9,891	6,105,502
Room type.....	4,026	1,297,043	3,456	7,927	1,818,474	906	4,026	1,297,043
Other than room type.....	5,265	4,808,459	4,568	7,927	2,755,586	278	5,265	4,808,459
Ice making machines.....	2,504	564,466	2,274	1,866	627,761	144	2,504	564,466

* Revised.

¹ Continental United States.

² Includes Canada, Mexico, and United States territories.

³ Includes condensers and liquid coolers, shell and coil types, as well as fin coils (heating and cooling) and plate type evaporators.



COMING CONVENTIONS

New England States Association Conference and Exhibits

Place: Hotel Bradford
City: Boston, Mass.
Date: October 8, 9 and 10, 1948
General Chairman: John J. Madden, 212 Madison Street, Dedham, Mass.

11th Annual RSES Convention and R.E.M.A. Exhibition

Place: Sherman Hotel
City: Chicago, Illinois
Date: November 19-22, 1948
Secretary: H. T. McDermott, 433 North Waller Ave., Chicago, Ill.

Illinois State Association

Place: St. Nicholas Hotel
City: Springfield, Illinois
Date: September 25 and 26
Secretary: B. V. Clark, 612 N. May Street, Aurora, Illinois.

JESSE CHESTER BLAIR

THE refrigeration industry in Southern California lost one of its best known and most beloved members by the sudden and unexpected death, at the age of 62, of Jesse Chester Blair, in Los Angeles on March 28, 1948 from a heart attack, after a lifetime in the industry largely devoted to the education of young men in refrigeration and air conditioning.



JESSE BLAIR

At the time of his death Mr. Blair was employed by the Los Angeles City schools as a full time coordinator in Ap-

prenticeship for refrigeration and air conditioning, a position he had held only since the beginning of the present school year, and which was necessitated by the expansion of the apprenticeship training courses given by the school system. Mr. Blair can be credited in large measure, for this expansion because of the interest created by his many previous years work devoted to educational work in the field.

Mr. Blair's career began immediately after his graduation from Lafayette High School of Buffalo, New York in 1904 when for the next five years he worked in the trades of mechanical and electrical engineering and refrigeration as a mechanic. Realizing the need of further education he entered the University of California at Berkeley in 1909, taking his B.S. Degree in Mechanical Engineering in 1914. For the next two years he remained at Berkeley taking post graduate courses and as a teaching assistant in the University.

In 1916 he moved to Honolulu, where for the next 10 years he was employed by the Maui Electric Company, on mechanical and electrical work, including refrigeration, air conditioning and diesel engineering. He continued his teaching work while in the Hawaiian Islands, conducting classes in Honolulu.

Returning to the mainland in 1926, Mr. Blair was connected with the National Refrigeration Company in Vancouver, B. C., Portland, Oregon and Los Angeles for several years following which he did consulting work and part time teaching of refrigeration and air conditioning in Los Angeles.

In 1932 he became a member of the adult education faculty of the Frank Wiggins Trade School of the Los Angeles City School District and taught refrigeration and air conditioning in that trade school, and was one of the pioneers in organizing apprenticeship training in that industry.

In 1942 the growth of the apprentice training classes required the assignment

of Mr. Blair to part time coordination of the program, and for the next five years those duties were combined with his teaching duties until in 1947 as previously mentioned, he was placed on full time as the coordinator of the apprentice program.

In addition to his educational work Mr. Blair had many other interests in the refrigeration and air conditioning. Because of his contributions to the industry in the field of education he was elected some years ago as an honorary member of the Refrigeration Contractors Association of Los Angeles. He was a member of RSES, of ASRE and NAPRE taking an active part in the activities of these technical groups. He was a 32nd degree Mason and a Shriner as well as having other activities and interests too numerous to mention.

Mr. Blair is survived by two sons, Arthur C., of Compton, California, and Theodore R., of South Gate, California, both of whom were pilots in the Army Air Force during World War II as was a third son, James, who was killed in action over Italy.

The deepest sympathies of the entire refrigeration industry of Southern California are extended to his family and to all whom his passing saddens.

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DETROIT REORGANIZES

AT AN open house party arranged by J. M. Oberc of J. M. Oberc, Inc. held in Detroit on April 14, Director Earl Yockey of the International Society was presented the opportunity of discussing the re-formation of a chapter in Detroit. Recently a petition was presented to form a chapter and the following temporary officers were selected to serve during the formative period of the chapter: Ed Kellie, President; Jack M. Baragar, 1st Vice-President, Elmer Pugh, 2nd Vice-President; Earl Jennings, Secretary, John C. Bell, Treasurer, and John Lindsay, Sgt.-at-Arms.

At the meeting of May 6, nearly 80 persons attended what will be recorded as the first meeting of the newly organized Detroit Chapter of the Refrigeration Service Engineers Society held at the Rackham Educational Foundation.

Many applications for membership were turned in after the group heard talks on the RSES by John C. Rehard,

chief safety engineer of the City of Detroit; Charles Earl, contractor; Jack M. Baragar, and Ed. Kellie, head of Aminco Refrigeration Products.



Detroit Chapter officers, left to right, rear: J. M. Baragar, 1st Vice-President; J. C. Bell, Treasurer; E. Pugh, 2nd Vice-President; Chas. Earl, Educational Chairman: Front—Earl Jennings, Secretary, and Ed. Kellie, President.



Speakers at open house party of J. M. Oberc, Inc., left to right, Detroit refrigeration wholesaler J. M. Oberc; James E. Perry, Director, National Refrigeration Contractors Assn.; George Taubeneck, publisher, Air Conditioning & Refrigeration News, Detroit; Ted Coggin, Mgr. Refrigeration Div., Detroit Lubricator Co., Detroit; Earl Yockey, Director, Refrigeration Service Engineers Society, Columbus, Ohio; Dale H. Bodine, Service Manager, Copeland Refrigeration Corp., Sidney, Ohio.

Photo by Austin Jones

Main address of the evening was given by T. J. Ammel of Nash-Kelvinator Corp., who discussed "Opportunities in Refrigeration Service Sales."

The Detroit Group, which is applying for a charter, is receiving the full support of local parts wholesalers and others in the refrigeration industry in its organizational drive.



A view of the banquet held during the CARSES second annual conference which was a part of the Western Refrigeration Educational Exhibit and Conference held in the Palace Hotel, San Francisco, May 1. Three hundred and eighty were in attendance.

First RSES-REMA All Educational Exhibit and Conference a Success

THE Western Refrigeration Educational Exhibit and Conference, which was the first of the regional shows conducted by the Refrigeration Equipment Manufacturers Association and the Refrigeration Service Engineers Society, held at the Palace Hotel, San Francisco, April 30th, May 1st and 2nd, in the opinion of all those in attendance was a complete success. The three-day all educational show and conference drew a total attendance of more than one thousand.

The interest created by the educational exhibits proved to be far beyond the expectations of the average exhibitor. Visitors came from all parts of the western states, including the states of California, Washington, Texas, Utah, Oregon, Arizona, Idaho, and one visitor from as far away as the Philippine Islands.

Sixty-two exhibitors provided a very interesting educational display which included cut-away models, demonstrations of operating principles, glass evaporators, partially dismantled equipment which showed the construction of the equipment, charts, working models and

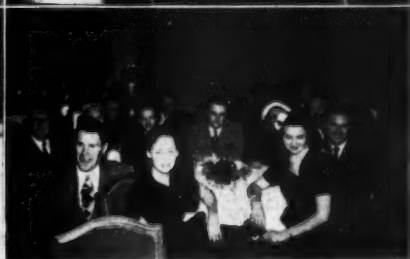
1948-49 Officers of CARSES

W. E. Wharton, Oakland, President
Lloyd Thomas, Monterey, 1st Vice-President
Ralph French, San Diego, 2nd Vice-President
C. L. Rusten, San Francisco, Secretary
Charles G. Bell, Fresno, Asst. Secretary
Stewart Bell, Long Beach, Treasurer
Sam Grove, Bakersfield, Sergeant-at-Arms
Hal Crumly, Pomona, Educational Director

Board of Directors

Frank Frazier, Arrowhead Chapter
Robert Chambers, Hub Compton Chapter
Harold McQuay, Los Angeles Chapter
Austin Hicks, Orange County Chapter
Charles Rush, San Fernando Chapter
Clarence Stumpf, San Gabriel Chapter
A. M. MacLennan, Sacramento Chapter

various other displays of interest to the service engineer. One very interesting display was that of Hoffman and Rutley Electric Refrigeration Motors Sales and Service, which was a complete motor rewinding and repair shop set up in a room adjoining the exhibition. Several motors were rewound and various repairs made as a part of this demonstration. Visitors were given a complete



These views of the activities at the Western Refrigeration Educational Exhibit and Conference show in the left hand column, top to bottom: Merle Soden (foreground) and his board of experts during one of the round table forums; a part of the large audience present at the educational meetings; the ladies during one of their morning meetings and entertainments; Kelvinator and finally, General Controls Company exhibit in the exhibition hall.

The right hand column of pictures are all tables at the annual banquet. Two full pages of exhibit pictures appear on following pages.

Photos by Norman Overweaver



Shown in this ribbon cutting ceremony preceding the opening of the REMA exhibit in San Francisco, April 30, are left to right: H. F. Spoehrer, Chairman of the REMA Committee; H. F. Hildreth, President of REMA; J. Pat Riley, President of the California Association, RSES; David Fagg, General Chairman of the Convention Committees; a representative of the Mayor's office hidden behind Mr. Fagg; and Paul Reed, International Chairman of the Educational Committee.

demonstration of how this work is done, and it goes without saying that many questions were thoroughly answered during this exhibit.

The exhibition hall was opened officially at 12 noon Friday, April 30, with a ribbon cutting ceremony conducted by David Fagg, Convention Chairman. Greetings and brief comments were made in turn by J. Pat Riley, President of CARSES, Paul Reed for the National Society, H. F. Hildreth, President of REMA, H. F. Spoehrer, Chairman of the Show Committee, and finally, by a representative from the Mayor's office. The actual ribbon cutting was done by H. F. Hildreth and J. Pat Riley.

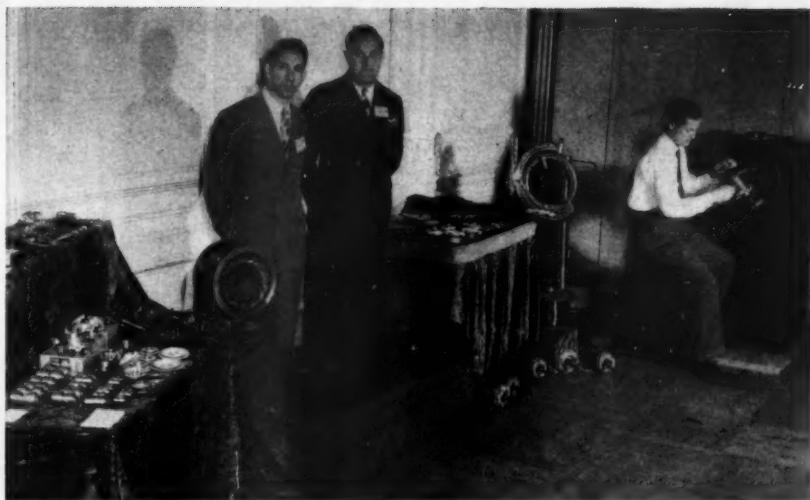
The exhibits were open the first day from noon to 10:00 p.m., the second day from noon to 6:00 p.m., and the third day from noon to 5:00 p.m. Exhibitors reported they were kept busy at all times through the three days with a continuous stream of visitors who showed considerable interest in the products and asked many questions concerning their construction and application.

No educational programs were held during the first day of the convention.

However, a chapter forum conducted by Merle Soden, Educational Director of CARSES, for the benefit of educational chairmen of the various chapters and other interested members, developed into an interesting discussion of how educational programs could be improved and what was available for the use of the chapters.

Another meeting during the day completed the appointment of members from chapters to the State Association Board of Directors. It is from this Board, consisting of a total of fifteen men, that the officers of the State Association are elected. The actual election was held on Saturday, at which time the officers noted elsewhere in these pages, were elected.

On Saturday, May 1, the official opening of the educational session got under way with a round table forum conducted by Merle Soden, Educational Director for the State of California. On his Board of Advisors were D. D. Wile, Refrigeration Engineering, Inc.; P. B. Reed, Perfex Corporation; W. R. Rinelli, Ansul Chemical Company; J. A. Brown of Westinghouse, and Herr Doktor Eu-



One very interesting exhibit of the Western Refrigeration Exhibition and Conference was a complete motor rewinding and repair shop displayed by Hoffman and Rutley Electric Refrigeration Motors Sales and Service, in which the actual rewinding of motors and various repair operations were made during the show. This exhibit proved very educational to the visiting service engineer.

gene Von Riley, B.O., of Vienna. The latter added a humorous touch to the question and answer program, providing information on how it was done in the old country. Doktor Riley, incidentally, is associated with Westinghouse.

The first speaker of the morning was H. F. Hildreth on the subject "The Road Ahead" which appears elsewhere in this issue.

Paul Reed, International Educational Director of RSES, was the next speaker on the program on the subject "Seals: Their Replacement, Repair, and Application." Mr. Reed traced the development of the seal from the various types produced through the years to the most modern types found in the field today, then explained some of the engineering problems in designing a good seal, and finally wound up with service procedure in replacing or repairing seals.

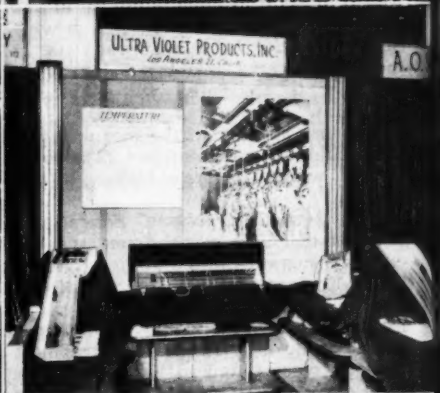
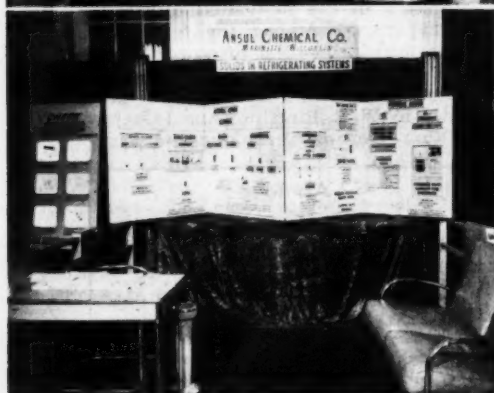
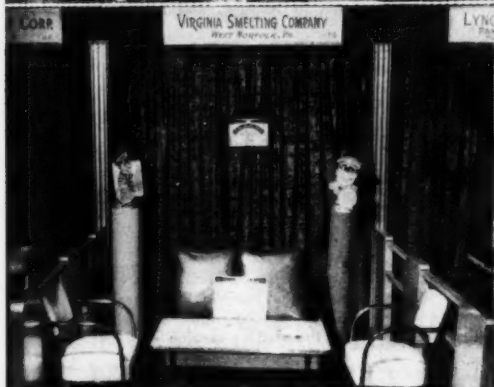
The morning session adjourned, and during the afternoon a series of educational short, illustrated lectures were provided for those who were interested. It was not intended that these educational briefs should attract the attention of the entire attendance, because the exhibition hall was opened during this

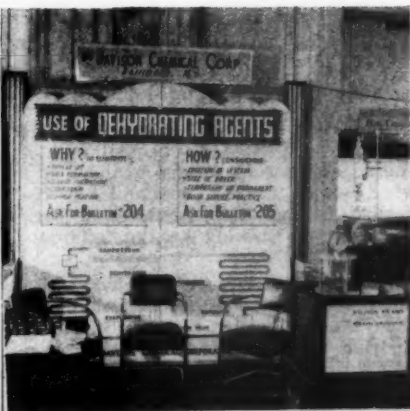
time and it was felt that only those interested in the individual discussion would attend. Among the talks provided during the first afternoon were: "The Action of Methyl Chloride on Aluminum", a sound motion picture presented by W. R. Rinelli of Ansul Chemical Co.; "Testing Technique and Serv-

An Idea

Compton "Hub" Chapter, Compton, Calif., distributed a 3" x 3" card during the Western Refrigeration Educational Exhibit and Conference, extending to interested visitors an invitation to attend their meetings when in the vicinity of Compton. The card carried the emblem and seal of the Society and with the chapter's name in bold type, provided the following invitation, "When in our vicinity come and visit us. If you live near we will welcome your application for membership. Meeting 3rd Wed., 14421 S. Muriel Ave."

ice Aids," a demonstration and talk by E. C. Williams, Airserco Mfg. Co. Inc.; "Thermo Valves and Solenoids—Theory and Operation," an illustrated talk by William Myers, Alco Valve Company; "The Hermetically Sealed Refrigerating Machine as Designed for Commercial





and Packaged Air Conditioning Applications," a talk by Carl L. Olin, Servel, Inc.

Sunday Program

On Sunday morning, May 2, the educational program again opened with a round table forum. Added to the Board of Advisors in this session was Hy Jarvis, Refrigeration Engineering Inc., Los Angeles. Lacking was the humorous Doktor Von Riley.

About 250 visitors were present at the beginning of the morning session and the first speaker was H. F. Spoehrer, Sporlan Valve Company and Chairman of the Exhibition Committee, who spoke on the subject "RSES and REMA Relations." His talk appears elsewhere in this issue. Upon completing this talk he turned to the subject "Solenoid Valves: Their Application and Operation," which was a very interesting and educational paper on the construction and application of solenoid valves. His paper will appear in a subsequent issue of this journal.

D. D. Wile, Refrigeration Engineering, Inc., spoke next on the subject "Simplifying Your Air Conditioning Problem," and it was by this time that the audience had swelled to approximately 350 men. Mr. Wile's paper was a very interesting one, simplifying the problem of calculating refrigeration and air conditioning and outlining methods of determining air circulation for various types of applications. His paper will be published in full at a later date.

Afternoon Briefs

The morning session was closed and the main attraction of the afternoon was the exhibition in another part of the hotel. However, as provided on the previous day, a series of educational briefs was presented for those who were interested during the afternoon. They included: "Principles of Refrigeration" and "Adding or Removing Refrigerant," two short films by Nelson Woodall, Virginia Smelting Company; "Moisture Elimination in Refrigeration Systems," an illustrated talk by F. Y. Carter, Detroit Lubricator Company; "Theory and Operation of Thermostatic Expansion Valves," a talk illustrated by slide films presented by Merle G. Haynes, Sporlan

Valve Company; "Service on the Open Type Display Case," by J. H. Spence, Hussmann Refrigeration, Inc.; "Frozen Freshness," a colored sound movie by Paul Freeburn, Frigidaire Division, G.M.C.; and "Redwood Giants," a sound movie showing the use of redwood bark for insulation, presented by John H. Klass, The Pacific Lumber Co.

Annual Banquet

The annual banquet of CARSES was held Saturday night and was attended by more than 380 members, ladies and visitors. Several acts of a first class floor show followed the dinner, then dancing occupied the crowd until the early hours of the morning.

All in all, the entire exhibition and educational program was very well planned and very successfully produced. The various working committees in charge of this show are to be congratulated upon the success obtained. Committees responsible for the RSES portion of the program are: David Fagg, General Chairman; W. E. Wharton, Coordinator-Finance; Rowland Cook, General Arrangements; M. Willis, Contracts, Gen. Arrangements; Charles Rusten, Publicity; Harry E. Howard, Yearbook; H. J. Dike, Jr., Education; E. W. Zlibin, Exhibits; F. E. Dwyer, Housing; and N. Overweser, Photography.

Those responsible for the REMA exhibition are: Educational Committee—H. F. Spoehrer, Chairman, K. B. Thordike and J. A. Strachan.

INDIANA CHAPTERS TO FORM STATE ASSOCIATION

REPRESENTATIVES of Indiana chapters met in Indianapolis on Sunday, April 11, for the purpose of forming a state association to be known as the Hoosier State Association. Temporary officers were elected as follows: Thomas L. Driskell, Indianapolis, *President*; Earl Kinsey, Evansville, *Vice-President*; H. Hoffmeyer, Indianapolis, *Secretary-Treasurer*; and A. Brier, Elwood, *Sergeant-at-Arms*.

Edward Riccio of Chicago, and International Director Earl Yockey were present to aid in the formation. Another meeting is scheduled for Sunday, May 16.



The Road Ahead

An address before the CARSES-REMA
Western Refrigeration Exhibit and Con-
ference in San Francisco, April 30.

By H. F. HILDRETH
President of REMA

THE last time that I had the pleasure of addressing your Society was during your Ninth Annual Convention, held in Cleveland, Ohio, back in October of 1946. I am very sure that a number of you were present at that meeting. As you may recall, it was held in the Grand Ballroom of the Hollenden Hotel and the room was packed with people. People who, I am sure, were eagerly looking forward to a long period of peaceful and prosperous times.

My subject at that meeting was, "The Refrigeration Service Engineer's Place in the Industry." That was a pretty easy subject for me to talk about at that time. It would be an easy subject to talk about at any time because without your services, the Refrigeration Industry could not exist. No industry as complex as the Refrigeration Industry could possibly exist without good service.

Conditions looked pretty rosy to all of us at that time insofar as the future was concerned. Reconversion plans were well under way. The demand for our products and our services seemed to be unlimited. The cry on every side was for production and more production. We had just come out of World War II, victorious. The world was sick of war and supposedly freed of the curse of dictators and their racketeering forms of government. Ready for rebuilding along the democratic way of life. How bright the future looked to all of us at that time. It certainly looked like a "downhill ride," with the wind behind us.

After accepting your secretary's kind invitation to come out here and talk to you I got to thinking about what I would say. It was suggested that I give you a talk along the same lines as my Cleveland talk. But as I read over that talk it

just struck me as being a bit out of line with conditions now existing. The outlook is far different for all of us than it was back in October of 1946. And so it occurred to me that maybe the most helpful subject for me to talk about was, "The Road Ahead." I realize that the future is something that is pretty hard for anybody to visualize very closely these days. But, as businessmen it is something that we should consider most carefully at this time. We must plan our course as wisely as we can.

Whenever I think about the future, I like to stop and dwell a bit upon where we have been, and then profit by our experience.

We have now enjoyed a little better than two years of good business, since we were together last. We have all had plenty of money and plenty of customers. Prosperity such as we have never enjoyed before. Maybe we have had too much prosperity, we may have become soft.

When a customer wanted our services or our products, he virtually had to beg on bended knee, and with a roll of bills in his fist, say "Please, sir, may I buy from you?" With everything in short supply we have really not been selling but rather trying to divide up what we had in as fair a way as possible. We haven't been sales engineers or service engineers, but merely allocation engineers. I mention this not critically but simply to bring out what all of us have been going through.

Business is still good and will probably continue to be so for some time to come, possibly not as good as it was last year at this time, but still far ahead of anything that we experienced prewar. But what a change has taken place in the

world outlook and its possible effects upon us! Our plans for rebuilding the world along the democratic way of life still go on. But instead of progressing with those plans in a healthy and a peaceful atmosphere of goodwill, we now find that we must fight every step of our way in the face of communistic resistance.

A new dictator has turned out to be the champ of them all, even worse, if possible, than his predecessors. What a disappointment to find that our wartime ally is now our opponent at every turn. Everything we fought for in World War II, and planned for in the reconstruction period after the war, now seems to be threatened.

Instead of a long period of peaceful prosperity that we were all so eagerly looking forward to, we now find the outlook uncertain and shadowed with the clouds of war. War that we all hope and pray will not occur but which might be touched off by a series of incidents beyond our control.

I shudder to think of the possibilities of such a war. It could be waged in its most hideous form, guided missiles and atomic bombing of defenseless cities and their civilian populations. Let us hope that we do not have to live to see a third world war in a single generation.

On the other hand, we should all be thankful that we can live in this land of plenty, that our government is alert to what is going on, and I believe they are, and taking the necessary steps for defense while planning for a democratic and peaceful world. These defense and rehabilitation plans will undoubtedly affect our businesses to some extent, within the next year, because of the impact of our defense program and the Marshall Plan.

The lush sellers' market that we have all come to love so much, where the customers are on every side of us seems to be fast going out of the window. Every day brings us closer to the time when we will again have to sell our services. To the day when we will be saying to our customers, "Please, sir, may I serve you?" and "Thank you for your business."

To the day when we find ourselves fighting for business in a rough and tumble competitive market.

These, then, are times for reflecting on where we are going. Times for getting

our house in order for the battle ahead. Because only the fit and the trained will survive when the going gets tough.

All of this is disturbing and thought-provoking to say the least.

Now, the theme of your conference is "Promotion through Education."

To me, that statement can mean only one thing. The fellow who is ready and trained to face a competitive future is the fellow who is going to win out. From any way that you look at it, you can't lose on education. It is one thing that can be helpful to all of us, in good times or bad times, peace times or war times. Whether we continue in a peacetime economy or whether the unthinkable happens, we should go forward with our plans for more and more education.

Working Together

This Educational Conference here in California is one of the finest things that has happened to this industry in a long time. I say this because this conference has been brought about through the co-operation of Trade Associations. It shows that we in this industry are growing up to our responsibilities. That we are learning that we can work together for the benefit of more people and through this kind of cooperation, we will have a better and a stronger Refrigeration Industry.

The men who are working on the committees responsible for this conference and the ones that are to follow, are among the most competent men in our industry. They deserve our thanks and appreciation for the untiring efforts that they are putting into this work and for the personal sacrifice that is necessary on their part to bring these conferences about.

The seal of R.S.E.S. carries the slogan, "We do it right." If there ever was time when you should take that slogan to light and analyze what it means to you and your customers, it is now. Wherever you turn, you find progressive organizations checking over the condition of their businesses and doing everything possible to improve customer relations.

The railroads are now calling you about reservations. The hotels are beginning to solicit your business. The training of personnel in all walks of life is under way on a huge scale. As I see it, all of this is none too soon, as we have

all pretty much forgotten how to sell. I am fearful that some of us may have forgotten that the most precious thing we have in business is a customer's good will. It's time to be customer conscious and to get on the beam.

Start Selling Now

If I were a service engineer, a dealer or a contractor, I would take immediate steps to check over the condition of my business. I would talk to my organization on the need for courteous, prompt customer service. I would review my customer lists and make certain that every one of them knew that I was set up to take care of their requirements, both on service and the sale of new products. I would publicize what I could do for these customers through every possible means. I would check over the condition of my stocks. I would put on a special sales drive to get rid of any overstocked items and bring my inventories into balance. I would get my money out of slow-moving items, even though I had to sell at some sacrifice. I would clean up my store, put my display floor in order, have proper lighting and identification. I would make my store a friendly, pleasant place to do business. If I had any dissatisfied customers, I would make every effort to settle the differences and win them over to my side. For there is no better way to advertise, than through the recommendations of satisfied customers.

In short, now is the time to clear the deck, and to get ready for a competitive business.

With approximately 15% of the population of the United States, this Pacific Coast area should have good business for some time to come if we are willing to go after it. There are approximately 20,000,000 of people out here that must be served with all kinds of refrigeration, in the home, the store, the factory, the theatre—why the possibilities are tremendous. We are living in an age where refrigeration has been established as a necessity in our way of life.

Consider the demand for household refrigerators. They are still in short supply. There are thousands of people who have not yet been able to buy a new refrigerator. In addition, there are thousands more who have refrigerators that are in need of service.

The home freezer is a product that is slowly but surely gaining in public acceptance. If you will consider the possibilities for refrigeration in the field of frozen foods, you will find that it is literally tremendous. Some day this business will surely come into its own.

There is little wonder that many Eastern concerns have opened up manufacturing branches in this Pacific Coast area. Favored with good climate, ample natural resources and a large and progressive population, these Western States should fare well in whatever kind of an economy that we may have ahead of us.

I am very much impressed by what I have observed in the short time that I have been here at this conference. I am impressed with the energy and drive that I recognize as existing in your leaders, in bringing this conference about. I want you to know that it has been a real pleasure to come out here to California and to have this opportunity to talk to you. From what I see I am entirely confident that you have the kind of men and leadership that will not be found wanting in the days that lie ahead.

In closing, I should like to leave this thought with you. The trip down "The Road Ahead" can be successful or disastrous. The answer to a large degree is in our hands. It will be pretty much determined by how well we plan, and by how wisely we carry out those plans.

May I suggest that you make your conference theme, "Promotion Through Education," a living thing. Make it mean something to the men and women working for you and depending upon you for guidance. Start to bring this about as soon as you get home to your place of business. Do not be misled, too long, by easy business that you may still be enjoying. Remember all good things must come to an end. So let's take off our coats, roll up our sleeves and put our house in order to face, "The Road Ahead."

★ ★ ★

CHICAGO CHAPTER PICNIC

THE Chicago Chapter will hold a picnic on Sunday, June 13, at the Whitehouse Grove, River Road and Irving Park Blvd. Gate donation will be 50c per person and tickets may be ordered through the Chicago Chapter. Everyone attending is assured a pleasant Sunday.

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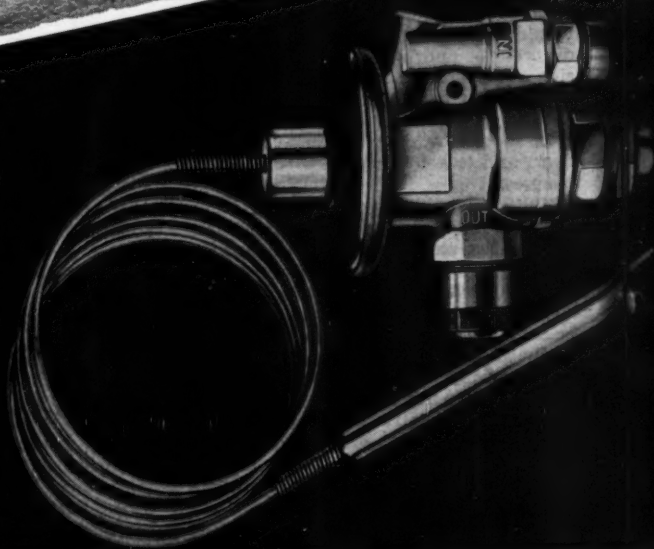
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RSES-REMA Relationship

**Paper delivered before the Western
Refrigeration Conference In
San Francisco,
April 30 to May 2**

**By H. F. SPOEHRER
Chairman, REMA Educational Committee**

IN OUR company, as well as in most companies, we have several departments. We have a production department, engineering department, credit department, sales department, purchasing department and others. In order for us successfully to produce and market our products all of these departments must cooperate toward a common objective. An industry, such as our refrigeration industry, is much the same as an individual company in this respect. In order for our industry to progress, all segments of the industry must cooperate with each other. No segment can survive without one or more of the other segments. These segments are, of course, manufacturers of equipment, manufacturers of accessories and supplies, wholesalers, distributors, dealers, contractors and installation and service engineers. They correspond pretty much to the department of a company.

In our company we occasionally have friction between departments. I receive complaints from one department against another, or from one individual in a department against an individual in another department. Usually I find upon investigation that the complaint is a result of a misunderstanding and the conditions have been somewhat exaggerated. The solution is to sit down with the parties involved and to discuss the matter frankly and fairly. In every case we find that the subject in question can be straightened out without difficulty and in very short order. The parties involved soon forget any differences that may have existed and they go back to their jobs with renewed enthusiasm and with an even closer feeling of cooperation between them.

The situation is identical with respect to our industry. A year or two ago the relationship between the various segments of the industry—particularly between the service engineers and manufacturers—was very poor. An ill feeling had been built up over a period of many months. The manufacturers were accused of not being interested in the service engineers or their problems. The service engineers were accused of things just as fantastic. We were being accused of presenting the All-Industry Show for the benefit of wholesalers and not for service engineers or contractors. It was a case of the manufacturers and service engineers not understanding each other's motives or problems. Little incidents became greatly magnified and all in all the relationship was definitely sour.

Then came plans for the First Western Refrigeration Conference at Long Beach last year and the breach was widened because of the fact that REMA was not in a position to approve of its members participating. We had very sound, logical reasons for our position. Just before the Long Beach Conference the relationship between RSES and REMA had hit the low point, and a general lack of trust and misunderstanding prevailed.

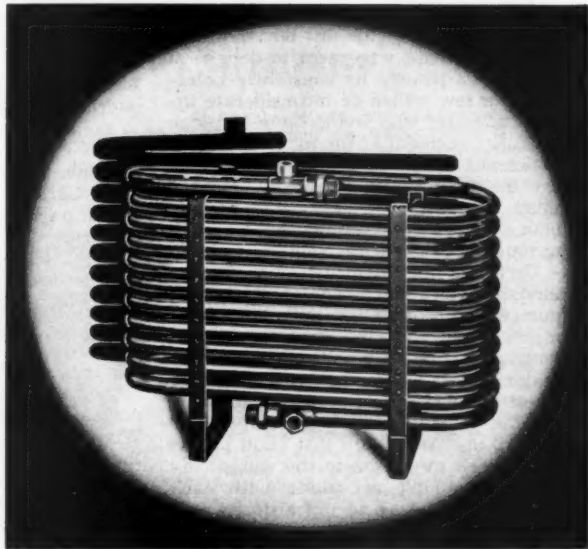
The first step in the improvement of our relationship came when a few REMA members visited the Long Beach Conference and had several very nice sessions with CARSES Officers and committee men. Subsequent meetings of the Refrigeration Industry Council, which were attended by wholesalers, service engineers, contractors and manufacturers further improved the relationship in the industry. We explained to each other some of the reasons behind our actions. We refuted some of the false rumors that had been spread around. By the time we had several meetings between REMA's Educational Conference Committee and various representatives of RSES, we were all convinced of how ridiculous some of our earlier thinking had been. We began to know each other and, above all, a mutual feeling of trust developed.

We are all extremely happy to see what has been accomplished during the past year and a half in developing a fine spirit of cooperation culminating in a series of four cooperatively sponsored educational exhibits and conferences.

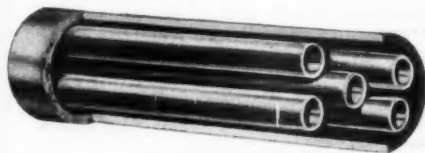
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This is the first of the series, and I am sure that there is no one here who isn't completely thrilled by this occasion. We have demonstrated our ability to work together for a common interest, and I for one feel that this is merely the first of many cooperative ventures that we will see in our industry in years to come.

There are all kinds of people in this world and from time to time there will be manufacturers or service engineers who will thoughtlessly violate a confidence, or who will do or say something detrimental to another individual or group of individuals in the industry. There are those who seem to delight in stirring up trouble by constantly pointing to a few selfish or inconsiderate individuals and who would have us judge an entire segment of the industry by the actions of a few. However, those people are definitely in the minority and we must all think straight and be big enough not to be influenced by such unfounded prejudices.

Certainly the majority of us in the industry place the progress of the industry and cooperation with other segments of the industry above the selfish motives of any individual. Certainly the majority of us realize that whether we're manufacturers, or service men, whether we have a large company or a small one, we're still just plain people and there's no reason in the world why people shouldn't get along with each other. If you were to put a dozen men in a room—some manufacturers, some service men, some wholesalers, some contractors and a few dealers, I defy anyone to pick out one from the other. Therefore, let's not be misled by a few who paint weird pictures of each segment for the purpose of setting one group against another.

We're all in business to make a livelihood and to make some profit. But, we also owe it to ourselves and to our industry to contribute all we possibly can of our time to the betterment of our industry. These cooperative meetings are part of that philosophy. Let's not be swayed from our common purpose. This fine spirit of understanding, which has been developed in recent months, is invaluable to all of us and if each one of us is determined that this spirit shall prevail it cannot possibly perish.

Ladies Enjoy Varied Program During San Francisco Meeting

BY MRS. W. E. WHARTON

THE visiting ladies to the REWARCUSES show and meeting held in San Francisco, Calif., enjoyed a program of something new and something different each day of their visit, and the success they had was entirely due to the splendid cooperation and hard work of the ladies of the Oakland and San Francisco chapters. The Hostess Committee, under the leadership of Mrs. Rowland F. Cooke, did much to make the ladies feel welcome and assisted them in registering and finding interesting things to do to make their visit enjoyable.

On Friday, April 30th, under the guidance and arrangement of Mrs. Eugene Larson, a group of ladies were taken on a tour through Gump's Art Galleries, internationally famous importers, featuring one of the world's finest collections of jade.

Saturday morning, May 1st, in the California Room, Laurence of San Francisco demonstrated the latest in hair styling to a capacity crowd. After viewing his work several of the ladies made appointments with him. Mrs. William Wurzbach made the arrangements for the hair styling and also for the floral display which immediately followed. Mr. Olson from the shop of Podesta and Baldocchi, well known San Francisco florists, gave a very interesting demonstration of floral arrangements.

The highlight of the ladies program was the fashion show and tea held Saturday afternoon under the guiding hand of Mrs. Ted Andrews. There were approximately 120 ladies in attendance to see the latest in fashion from sports wear to bridal gowns and mink coats. The dresses and gowns were from the shops of Reba Lent and Jessie Culbert, and the gorgeous furs were from Kraft Furriers, all of San Francisco. Following the fashion show, tea, coffee and sandwiches were served.

The ladies who attended these programs which had been planned for their entertainment, enjoyed and appreciated them very much, and those who planned the programs and did the work felt well repaid for their efforts.

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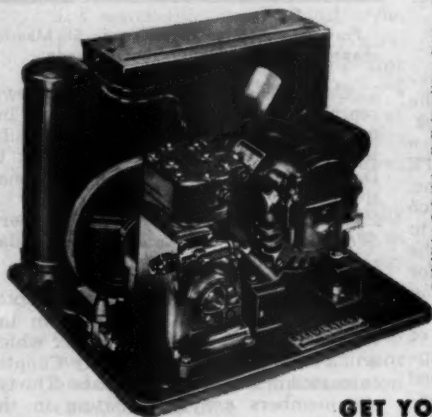
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NEW CHAPTERS IN THE MAKING

● **Altoona, Pa.**—A new chapter has been formed in this city, to be known as **ALTOONA CHAPTER**. On April 7th a meeting was held and permanent officers elected to serve a one-year term as follows: Herman Bender, *President*; Maurice Bender, *1st Vice-President*; S. D. Brandt, Sr., *2nd Vice-President*; Charles C. Allen, *Secretary*; Hassel Stere, *Treasurer*; E. J. Stein, *Sergeant-at-Arms*. Following installation of these officers, K. M. Newcum, President of Remco, Inc., presented a very interesting discourse on moisture troubles in refrigeration systems, emphasizing the greater efficiency of mechanical drying agents at lower temperatures. An open forum question and answer period was then held.

International Sergeant-at-Arms W. E. Booth is scheduled to present the charter to this chapter on May 5.

● **Newark, N. J.**—A meeting of 130 service engineers was held on April 5 at the Lincoln Technical Institute in Newark, to further plans for the formation of a chapter known as the **GARDEN STATE CHAPTER**. Tom Scott of Remco, Inc. was present to describe the new Remco driers and tell how to install them in refrigeration systems. His talk kept the entire audience keenly interested for almost an hour. Al Manning, Chairman of the Organization Committee, gave a brief summary of the aims and ideals of the Society, and twenty-seven new applications for membership were filed with the Secretary. The chapter now enjoys a total of 60 charter members. It is expected the charter will be presented some time in June.

● **Macon, Ga.**—On April 5 a formation meeting was held for the purpose of organizing a chapter called **PEACH CHAPTER**. An interesting educational talk was given by Mr. Wall on the effect of carbon tetrachloride on refrigeration systems and the effect of carbon tet. on health. He also spoke on the safety and efficiency of various cleaning fluids. Mr. Ogden chose the subject of methods of cleaning and drying for his discussion. Charter presentation for this chapter will take place in the near future.

● **Trois-Rivieres, Que.**—A petition for charter for a new Canadian chapter, **Vallee du St. Maurice Chapter** at Trois-Rivieres, Quebec, contains the names of thirty-six new members. International Director Napoleon Brossoit addressed the chapter on behalf of the International Society on April 12, and following the business session of the meeting, Messrs.



Formation meeting of Vallee du St. Maurice chapter, Trois-Rivieres, Quebec, Canada.

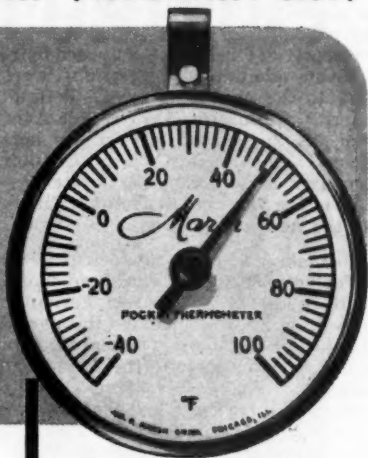
McCullough, Boucher, and Andrews, representing Frigidaire presented an interesting illustrated lecture on the subject of "What to Do and What Not to Do." Officers selected during the formative period of the chapter include: J. C. Dorval, *President*; L. P. Guilbert, *Secretary-Treasurer*; and A. Jacob, *Educational Chairman*.

● **New Bedford, Mass.**—A new chapter has petitioned for a charter from the New England states. The chapter which will be known as **Whaling City Chapter** is located in New Bedford, Mass. Thirty-six members are participating in the formation of this Association. Officers elected to serve until June 30, 1949, include: Frank S. Folger, *President*; Arthur J. Belliveau, *1st Vice-President*; George Ratcliffe, *2nd Vice-President*; Herve J. Couture, *Secretary*; Joseph Castellina, *Treasurer*; and Adelard E. Le-page, *Sergeant-at-Arms*. The Board of Directors consists of: Richard Evans, A. V. McGuire, Sr., and Ralph J. King.

At the first meeting, Mr. Jackson representing the Kold-Hold Mfg. Co. presented a talk on the construction of Kold-Hold plates and illustrated his educational talk with slides of truck installations as well as illustrations of the Kold-Hold factory. Refreshments were served following Mr. Jackson's talk.

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● *Olean, N. Y.*—A petition for charter with the signatures of eighteen members was presented to the International Society on April 21 by the Allegany Valley Chapter of Olean, N. Y. Subsequently, seven additional applications were added to the charter list. Kenneth P. Kester, P. O. Box 206, 413 Gilmore Ave., Olean, N. Y., is Secretary of the new chapter, and Allegany Valley Chapter extends an invitation to servicemen residing in the vicinity of Olean to affiliate with the new association.

● *Glendale, Calif.*—A new chapter on the Pacific coast will be chartered shortly. It is known as the San Fernando Valley Chapter and includes the names of forty-four members. Officers to serve the new chapter include the following: Charles S. Rush, *President*; George Frederickson, *1st Vice-President*; George T. Bylord, *2nd Vice-President*; Donald Stapf, *Secretary*; F. W. Pelton, *Treasurer*; K. C. Moore, *Sergeant-at-Arms*; and James W. Frantz, *Educational Director*. The Board of Directors consists of the following: C. R. Hall, Charles B. Taylor, James W. Frantz, John Schlemmer, and Jesse J. King.

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BUCKEYE STATE ASSOCIATION SECOND ANNUAL CONVENTION

THE Buckeye State Association held its second annual convention at the Hotel Onesto in Canton, Ohio, on April 3 and 4. A good attendance was on hand, a fine educational program provided, and all-in-all the entire convention was a huge success.

Registration began at 9:30 A.M. on Saturday, April 3, and at 10:30 the convention was officially opened by President O. L. Nichols, Jr. A business session was conducted until the 12:00 noon recess. At 1:15 P.M. the members and their wives met in a joint session to receive the official welcome from Mayor Carl F. Klein of Canton.

The first educational program began at 1:30 P.M., conducted by Educational Chairman of Canton Regional Chapter, Brooks Frantz. A welding and soldering demonstration by J. F. McFarlane of Linde Products Co., started off the program. This was followed by a talk on the subject "Moisture in Refrigerating Systems" by Charles Boylan of the Weatherhead Co. At 3:45 the tube bend-



Three views taken during the Buckeye State Association held April 3 and 4 at the Hotel Onesto, Canton, Ohio. In the upper picture, Frank Denzer of Linde Air Products is shown giving a demonstration of silver soldering. The center picture shows the boys who entered the tube bending contest hard at work. In the bottom picture are, left to right, Larry Powell, D. H. Bodine, Leonard K. Wright and C. O. Whippis, judges of the tube bending contest, making the decision.

ing contest, sponsored by Imperial Brass Co., and conducted by Keller Waugh, took place. First prize was won by Maurice Ross of Columbus, second place being taken by James Denton of Canton. The Imperial Brass Co. representative expressed the opinion that it was the closest contest he had ever witnessed. The Hannon Electric Co. of Canton, who

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Sixty percent of all refrigeration control replacement requirements are met by one Cutler-Hammer control alone ... the *Universal Replacement Unit*. And where specific control is needed, that need is met by Exact Replacement control items in the C-H line, each individually packed, clearly labelled, complete with dial plate mounting screws, trim washers and full instructions for mounting and adjustment.

The practical advantages gained are: less capital tied up in stock; rapid and regular turnover; speedier completion of each job; greater all-round satisfaction. And in each C-H Replacement unit you will find the results of a 50-year specialization that had led to acknowledged leadership in the control field. Thus, outstanding refrigeration wholesalers recommend C-H Replacement Control and alert service organizations everywhere feature and use it. CUTLER-HAMMER, Inc., 1363 St. Paul Ave., Milwaukee 1, Wisconsin.

Bul. 9521N9 ➔

THIS ONE UNIVERSAL UNIT ALONE COVERS 60% OF ALL NEEDS ADJUSTABLE MOUNTING BRACKETS

Maximum Mounting Centers 4-3/16

Minimum Mounting Centers 2-3/16

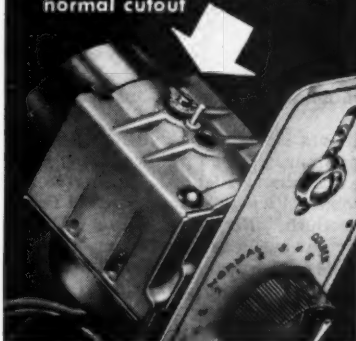
Adjustable Cutout Feature—Differential can be increased 4 degrees by turning indicator in "Hi" direction and decreased 4 degrees by turning in "Lo" direction.

Adjustable Range—Turning screw clockwise lowers setting and counter-clockwise raises settings.

Operating knob can be adjusted to meet various evaporator scale settings. New knob



4 degree external differential adjustment either side of normal cutout



is ideal for varying shield thicknesses. Makes this control adaptable to wider range of single dial replacement jobs where overload is not required in unit.



DOMESTIC, SEMI-COMMERCIAL AND COMMERCIAL CONTROL

had one of the display tables, offered a Silex coffee maker to the person coming nearest guessing the number of motor parts which they had sealed in a glass jar. The number of parts totaled 151—Dick Burney of Cleveland won with his guess of 146.

The annual banquet took place at 8:00 P.M. Saturday, in the Main Ballroom. Besides a very delicious dinner, there was a floor show and a drawing for raffle prizes.

The Sunday morning program began at 10:00 A.M. with a business session which lasted until noon. At 1:15 P.M. Educational Chairman Brooks Frantz again conducted the educational program. An extremely informative talk on the subject "How to Service Copelametic Units in the Field" was given by D. H. Bodine of the Copeland Refrigeration Corp. Immediately afterward, Charles Segal of Kramer Trenton Co. spoke on their Thermobank. The last talk on the Sunday educational program was one entitled "Alco Presents" by Leonard K. Wright of Alco Valve Company.

At 4:30 P.M. another business session was held before the convention adjourned, ending two days of exceptional educational features and business meetings.

Officers elected to serve for the coming year are: Carl F. Hovenstine, Canton, *President*; Richard Hollingsworth, Cleveland, *Vice-President*; Forrest Poole, Portsmouth, *Secretary*; Carl Dieter, Youngstown, *Treasurer*; Victor VanVorris, Toledo, *Sergeant-at-Arms*; and Jack Croushore, Marion, *Educational Chairman*.

To keep the ladies entertained, a luncheon was arranged for them at Bender's Restaurant on Saturday, and on Sunday a bingo party was given—the prizes for which were donated by Canton merchants.

★ ★ ★

MRS. DRISKELL RECUPERATING FROM OPERATION

MRS. EMILY DRISKELL, International President of the Ladies Auxiliary, underwent an operation on March 17th at Burley, Idaho. She is now at home but will be unable to use her eyes to do much reading or writing for quite some time. She wishes to thank her

many friends for flowers, cards and letters she has received. Officers and members of the auxiliary extend best wishes for her steady recovery.

★ ★ ★

METROPOLITAN NEW YORK CHAPTER

PICTURED here is the identification button in its actual size, provided by Metropolitan New York Chapter for its members while attending meetings. The button is of celluloid, neat appearing, printed in blue on a white background. Space is provided in the center panel for



insertion of the member's name. It presents an idea well worth considering for other chapters.

Another activity of the Metropolitan New York Chapter is its monthly paper entitled "The Metropolitan" which is a mimeographed news bulletin containing many personal notes about members and some educational information. Published and edited by Fred Asselmeyer, the paper is gaining much favor among the members.

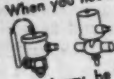
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Chapter Notes

● **BERKSHIRE COUNTY CHAPTER, Pittsfield, Mass., Mar. 24**—During the business meeting, the application for membership of Alfred Deloye was accepted by the membership committee. The educational program consisted of pictures on steel making which were shown by Leone Forte. They proved instructive and were enjoyed by the audience.

Those attending the April meeting witnessed a demonstration given by Mr. Micklejohn and Frank Meyers on the use of the new dehydrator board invented by McIntire Connector Co. A. S. Whitney and his gang furnished the equipment for the demonstration.

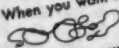
When you need
equipment, tools
or refrigerants
in a hurry, he has them all in stock
waiting for you



When your
is tied up don't worry—he'll trust you



When you want help with a knotty
installation
problem, he usually has the answer



When you seek
information
on new developments, price
changes, or which is best to use
where—he's got it at his fingertips



Whenever you need help of
any kind, he's a
mighty good man
to know — because
every ALCO Wholesaler is carefully
selected to give you just as fine
service as ALCO Valves do — to
help build your business bigger.



when you're in need
he's a friend indeed —

**CALL
YOUR
ALCO WHOLESALER!**



He's the vital link in the
refrigeration industry that joins
us all together for
mutual help and profit!



ALCO VALVE CO.

857 KINGS LAND AVE. • ST. LOUIS 5, MO.

Designers and Manufacturers
of Thermostatic Expansion
Valves; Evaporator Pressure
Regulators; Solenoid Valves;
Float Valves; Float Switches.

● **BLACKHAWK CHAPTER, Burlington, Iowa, Apr. 5**—The main feature of the evening was a talk and demonstration on Kramer Thermobank, by L. H. Cohler. Refreshments of coffee and doughnuts were served.

● **CANTON REGIONAL CHAPTER, Canton, Ohio, Mar. 16**—This was a combination dinner and business meeting held at Hol-Guerns dairy tea room, with 28 members and a number of prominent guests present. Educational Chairman Frantz introduced C. M. Regan, representative of the Eifel Geared Plierench Co., who demonstrated the various ways of using this tool, and told of its advantages and abilities.

Next, George Schuld was introduced and proceeded to give a talk on Safety. He covered the proper handling of refrigerants, refrigerant drums, the effects of toxic gases, the effect of burning non-toxic gases, safety in handling electricity, etc. The talk was recorded on wire by Chris Koufos of the Canton Hardware Co. Mr. Schuld then gave another talk on service pointers, noting several tricks and service methods that have been used with success by him and his men. The President then introduced International Director Earl Yockey, who spoke briefly on matters concerning the International Society. During a discussion about the Buckeye State Assn., Jim Denton and Leonard Petry were elected to represent Canton Chapter in the tube bending contest sponsored by Imperial Brass Co. Several committees were also selected.

● **CENTRAL NEW YORK CHAPTER, Syracuse, N. Y., Apr. 13**—After the usual business session, representatives of Revere Copper & Brass Co. showed a sound movie of "Copper Fabrication." The pictures were in technicolor, showing operation from bar stock to the finished products. The section showing the making of copper tubing was most interesting to everyone. After the door prizes were won, the meeting adjourned and members congregated at the refreshment counter. Ted Glou, owner of Central Service Supply Co. where the meeting was held, was a very solicitous host, which contributed to a most enjoyable evening.

● **CENTRAL PENNSYLVANIA CHAPTER, Harrisburg, Pa., Mar. 18**—The guest of the evening was James Archibald of Temprite Products Corp. In his talk, Mr. Archibald explained the many difficulties encountered through improper or incomplete installations of Temprite beverage coolers, such as the omission of check valves and oil separators. He also explained the Temprite principle of carbonation. The door prize, given by Refrigeration Supply Co., was won by R. L. Homan.

At the April 15th meeting, a discussion was held on parking regulations, and it was decided that the chapter formulate a concrete plan to cope with the situation and then present it to the City Council for their consideration. Russell Jones, Sr. volunteered to contact several organizations who have solved similar problems to get their angle on it. L. S. Dunn, President of McIntire Connector Co., explained the advantages and methods of application of the D.F.N. moisture control

unit. Three door prizes donated by Refrigeration Supply Co., were taken by Messrs. Feegan, Deitz and Hostetter.

● **COLUMBUS CHAPTER, Columbus, Ohio, Mar. 10**—The highlight of the evening was a tube bending contest conducted by Frank Wilson of the Imperial Brass Co., in which eight members participated. The first place winner was Glenn Macy, coming through with a total time of 15 minutes. Second was Maurice Ross, his time being 18 minutes and 25 seconds. Third was John Gay, with 19 minutes and 5 seconds.

● **CORPUS CHRISTI CHAPTER, Corpus Christi, Tex., Apr. 1**—The meeting started off with a program presented by W. D. Knox of the Detroit Lubricator Co., which consisted of a wire recorder and slides to illustrate a talk on solenoid valve and expansion valves. This was a most interesting and instructive talk and the members unanimously agreed that it was the best educational program ever enjoyed by the chapter. During the business meeting that followed, Jack Friesen of the United Refrigeration Co. was introduced inasmuch as this was his first visit to the chapter since becoming a member. Mr. Friesen invited all members and their ladies to attend the 10th annual anniversary party of the United Refrigeration to be held in San Antonio in April.

● **DAYTON CHAPTER, Dayton, Ohio, Mar. 11**—Mr. Wetzel of General Controls was the speaker of the evening and in his talk gave the audience some invaluable information on expansion valves and thoroughly explained superheat.

During the business portion of the March 25th meeting, the application of Phillip Callison was read and turned over to the examining board. On the educational program, Messrs. Croushore and Weber of the Universal Cooler Co. presented a very interesting and informative lecture on identification of Universal Cooler products.

● **DIRIGO CHAPTER, Lewiston, Maine, Mar. 3**—A splendid educational program was prepared for this meeting. It was a colored movie entitled "Copper and its Alloys" and described by two representatives of Revere Copper and Brass, Inc., John F. Callahan and Allan C. Steele. The picture was highly educational, showing the raw metals being prepared for the finished product; also the alloys of copper. Mr. Steele then held a question and answer period, clearing up a number of questions on the subject. Credit for securing this fine picture goes to Mr. Berry of the Emery Waterhouse Co.

● **DISTRICT OF COLUMBIA CHAPTER, Washington, D. C., Mar. 23**—In addition to the chapter officers and members, there were 29 visitors present at this meeting. All business was dispensed with, due to the length of the educational program. Chairman of the Educational Committee, Louis Levy, introduced the speaker of the evening, Paul O. Domke of Mueller Brass Co. Mr. Domke gave a very fine talk on refrigeration products, driers, heat exchangers, valves, sight glasses

GOOD, STRONG TOOLS THAT MAKE TUBING CONNECTION WORK EASY



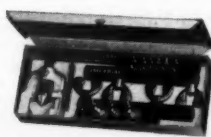
See Your Jobber...



DOUBLE- AND SINGLE-FLARING TOOL

for thin-wall soft steel, soft copper, and aluminum tubing $\frac{3}{16}$ " to $\frac{1}{2}$ " O.D.

No. 93-FB. Each.....\$7.35



WIDE-RANGE FLARING TOOL
for 9 sizes of tubing $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D.
Includes 2 flaring bars. Forged steel, slip-on yoke.

No. 375-F5 in handy kit. Each \$6.55



HEAVY-DUTY BENDING OUTFIT
for $\frac{1}{4}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ " and $1\frac{1}{2}$ " O.D. tubing.
Has 4 interchangeable mandrels.
Steel carrying case.

No. 360-F. Each.....\$37.50

IMPERIAL DE LUXE TUBE CUTTER

Roller Type with Flare Cut-off Groove

The outstanding favorite wherever tubing is used. Makes clean right angle cuts. Strong, lightweight aluminum alloy body. Convenient reamer attached.

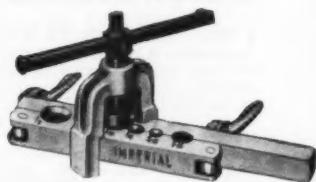


No. 174-F—For $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D. Tubing. Each.....\$3.15

No. 212-F—For $\frac{1}{8}$ " to $1\frac{1}{2}$ " O.D. Tubing. Each..... 3.70

IMPERIAL FLARING TOOL WITH SLIP-ON YOKE

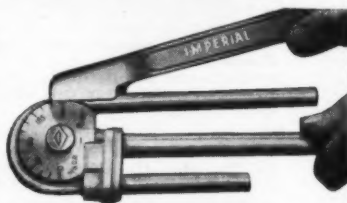
Has Imperial's exclusive quick slip-on yoke—made of forged steel. Makes proper 45° flares on copper, brass or aluminum tubing to make up tight SAE flare joints.



No. 195-F—Flares $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " O.D. Tubing. Each.....\$4.90

IMPERIAL HAND TUBE BENDERS

Calibrated open side bender. Makes smooth well-formed bends to a short radius without deforming tubing. Bends can be made any angle up to 180°.



No. 364-F Benders—individual bender required for each size of tubing from $\frac{3}{16}$ " to $\frac{1}{4}$ " O.D.....From \$6.05 to \$24.85 each

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THE IMPERIAL BRASS MFG. CO.
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Imperial's Value is shown in every detail of its products. Flaring, Bending, Flare-off and Bending.

and fittings—demonstrating the products as he talked. He concluded by exhibiting a present from the Mueller Brass Co., a hermetic kit to be presented as a door prize to the holder of the lucky ticket, who turned out to be Paul Grabar—a visitor. The Chris Heinrichs Brewery Co. donated the use of the hall and also refreshments.

The April 8th meeting enjoyed an attendance of 100 members and guests. Charles Grote of Sporian Valve Co., the speaker of the evening, gave an enlightening talk on the functions and uses of the thermostatic expansion valve, showing slides to demonstrate. A question and answer period followed immediately after the talk, with everyone enthusiastically taking part. A one quarter inch electric drill set complete with drills from 1/16 to 1/4", was donated as a door prize by Nash-Kelvinator Co., and won by David Leger, a chapter member. Refreshments supplied by the Refrigeration Supply Co., were served.

● **ELM CITY CHAPTER, New Haven, Conn., April**—About 40 attended this meeting under the direction of President Bill Paine, at the chapter's new meeting place at the New Haven Dairy House. Vincent Liqueur of Ansonia was admitted as an active member. Movies of "Pee-Wee" hockey game at Madison Square Garden in New York were shown. This show was doubly interesting because Bobby Nelson, 10 year old son of charter member "Scotty" Nelson, played a prominent part in the New Haven team's victory. Wally Pazik, Chairman of the Refreshment Committee, did the usual fine job with sandwiches and beer.

● **FAIRFIELD COUNTY CHAPTER, Fairfield County, Conn., Apr. 12**—Three representatives of Tenney Engineering, Inc., Messrs. Shapiro, Pactor and Schiffman, gave an extensive demonstration of the Defrostolator and the Tenney valve. Following this, educational films were shown.

● **FLORIDA WEST COAST CHAPTER, Tampa, Fla., Mar. 11**—After chapter business was completed, Bert Kaple of Copeland gave an informative talk on merchandising. Then several films on game hunting in the tropics were shown.

● **FORT WAYNE CHAPTER, Fort Wayne, Ind., Apr. 12**—Harold Braun who represented the chapter at the state meeting, gave a detailed report of what was accomplished at the formation meeting held on April 11. The educational program was conducted by a representative of Detroit Lubricator Co. and consisted of a talk on the design and application of Detroit valves. This was followed by a sound picture giving illustrations and application data, which was thoroughly enjoyed by the 59 in attendance.

● **GRANITE STATE CHAPTER, Manchester, N.H., Apr. 13**—The meeting was preceded by an excellent dinner, after which the business session was held and it was voted to accept Alfred E. Reid and Harlan F. Bessie as active members. President Cobe then introduced the speaker of the evening, Mr. Barr of Penn

Controls. Mr. Barr discussed and showed slides of the new Penn controls, following which he held a question and answer period to clear up any questions in the minds of the audience.

● **GREENVILLE CHAPTER, Greenville, S.C., Apr. 14**—An extensive report from the Price Committee was given and a list of suggested prices and service charges was voted upon and passed by all members present. New member James Barbary was presented with the RSSE seal.

● **HEAD OF THE LAKES CHAPTER, Duluth, Minn., Apr. 13**—The meeting was turned over to H. S. Stott, Chairman of the Educational Committee, who introduced the guest speaker, A. Golay of Kold-Hold Mfg. Co. Mr. Golay gave an outstanding talk on hold-over plates and truck refrigeration, and illustrated how to estimate a refrigerated truck installation. He showed slides of the Kold-Hold plant and of various types of truck installations. Special slides on truck bodies were also shown and held the interest of all present. This was followed by an entertainment program arranged by H. Luck of the Entertainment Committee.

● **INDIANAPOLIS CHAPTER, Indianapolis, Ind., Apr. 13**—President Smith appointed a Finance Committee consisting of Messrs. Willenberg, Hartzog, Wulf, Patterson and Duncan. Educational programs for future meetings were lined up and include first-class educational features which should not be missed. Tom Lester of Kold-Hold then took over the meeting and gave a very interesting talk on truck refrigeration and how to figure hold-over time on their plate.

● **KANKAKEE VALLEY CHAPTER, Kankakee, Ill., Apr. 5**—A diversified educational program was held at this meeting which included several speakers on a variety of topics. Ben Hursh gave an interesting talk on motors; Clifford Moody spoke on home and farm freezers; Bill Ward talked about temperatures and servicing of ice cream cabinets; Fred Rattunde chose the subject of water air conditioning for his talk; Wayne Purvis discussed Westinghouse controls, and Marshall Marcotte gave a helpful discourse on psychrometric charts.

● **LIMA CHAPTER, Lima, Ohio, Apr. 15**—The following officers were elected to serve for the 1948 term: Wilburn Miller, President; Ted Sims, 1st Vice-President; Lowell Nees, 2nd Vice-President; Richard Roberts, Secretary; Bill Bonecutter, Treasurer; Joseph Kunder, Sergeant-at-Arms, and Dan Shively, Educational Director. John Cribley and Garry Phillips volunteered to retain the job of bringing the refreshments to the meetings.

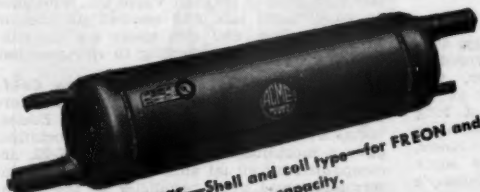
● **LITTLE EGYPT CHAPTER, Benton, Ill., Jan. 7**—Election of officers took place with the following results: Loren Taylor, President; Louis T. Koehl, 1st Vice-President; James O. Bailey, 2nd Vice-President; Irvin Hampton, Secretary; Merl Shaffer, Treasurer; Harold Cantrell, Sergeant-at-Arms; and Linde Reece, Chairman of the Educational Committee.



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These GENUINE Acme products

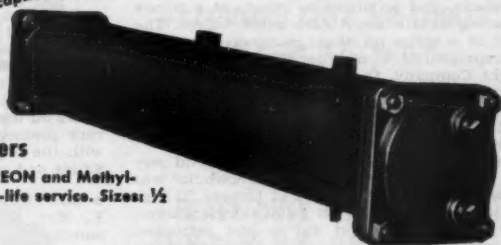


Heat Exchangers—Shell and coil type—for FREON and Methyl-Chloride— $\frac{1}{2}$ to 50 ton capacity.



Freon OIL SEPARATORS

Double filter for double efficiency. Moderate cost. Six models— $\frac{1}{4}$ H.P. to 10 H.P.



Shell and Tube Condensers

Low-cost, easy to clean. For FREON and Methyl-Chloride. Sturdily built for long-life service. Sizes: $\frac{1}{2}$ to 25 tons capacity.



Shell and Coil Condensers

Efficient yet inexpensive. Extremely popular for replacement. For FREON and Methyl-Chloride. Sizes: $\frac{1}{2}$ to 5 H.P.

Continuously serving the Refrigeration Industry since 1919 . . . there is a wealth of practical experience back of these Acme products . . . now available through jobbers.

ACME INDUSTRIES, INC.

JACKSON, MICHIGAN

● **METROPOLITAN NEW YORK CHAPTER**, New York, N. Y., Mar. 26—There were 65 members and 23 guests in attendance at this meeting. Mr. Shapero and Mr. Warren of Tenney Engineering, Inc., were present with a unit containing a glass evaporator demonstrating their valve and another unit with their newly developed hot gas Defrostolator. However, it was necessary to run the units singly because the voltage in the meeting hall was only 80 volts. Many vague points were cleared up by the lecturers who were very informative despite the hardships under which they were working. The Dark Horse prize for the night was a flare nut wrench donated by F. Foley and won by Murray Farber.

● **MIAMI CHAPTER**, Miami, Fla., Mar. 10—R. S. Smith, who had recently transferred to the Albuquerque, N. Mex. Chapter, was roundly applauded for his appearance at the meeting. He settled a controversy of long standing by relating his practical experiences with pressures at varying altitudes. Ben Knox, Alco Valve Co. representative, gave some interesting information on his company's products, and promised to return at a future meeting to talk about Alco check valves. The first of a series on electronics was shown by a representative of the Florida Power & Light Company. O. W. Brown conducted this portion of the program. Orin Crouch won the spirited door prize and M. D. Comfort bagged a bottle of refreshment in a raffle. Both were furnished by Johnny Dollard.

At the March 24th meeting, the second series of slides and recordings on electronics was presented, and Mr. Graves of Graves Refrigeration Supply gave an educational talk on the Alco snap action valves and refreshed some minds on the function of thermostatic expansion valves. Refreshments, furnished by Graves Refrigeration Supply, were served following the meeting.

● **NIAGARA FRONTIER CHAPTER**, Buffalo, N. Y., Apr. 10—Through the cooperation of Frigidaire Sales Corp., a motion picture "Selling America" was shown by E. Ray Lowe and Mr. Webster of the Buffalo branch of Frigidaire. The picture was thoroughly enjoyed and held the undivided attention of the 26 members present. A cash door prize was won by Mr. Rosenberger.

● **NOVA SCOTIA CHAPTER**, Halifax, N. S., Apr. 17—Four new members were welcomed to the chapter at this meeting. New officers elected were: Fred Williams, President; W. L. Mullenger, 1st Vice-President; E. A. Fraser, 2nd Vice-President; C. J. Tredwell, Secretary-Treasurer; C. E. Church, Sergeant-at-Arms; and G. J. Wilson, Educational Chairman. Refreshments were served.

● **ONTARIO MAPLE LEAF CHAPTER**, Toronto, Ont., Mar. 19—The following slate of officers was unanimously accepted: O. B. Frayne, President; C. G. Heilig, 1st Vice-President; R. G. Henderson, 2nd Vice-President; J. F. Morris, Secretary; N. D. Schell, Recording Secretary; G. A. Lever, Treasurer; W. G. Harford, Sergeant-at-Arms; and H.

Donnell, Chairman, Educational Committee. Board of Directors—C. W. Moore, W. J. Marshall, K. Wood, J. K. Lock, I. W. Thompson, R. Shroder, and W. Brooks.

The speaker of the evening, H. E. Corman of Canada Packers, Ltd., gave an interesting talk on the subject "The Refrigeration of Fresh Meats. Aging and Treatment in Relation to Quality." The talk was concluded by a question and answer period. P. Hedrick, on behalf of the members and guests, thanked the speaker for his excellent educational talk.

● **SACRAMENTO VALLEY CHAPTER**, Sacramento, Calif., Mar. 4—After the business meeting, President Al Schoen introduced Merle Haynes of Sporlan Valve Co., who gave an educational talk and showed pictures of Sporlan valves, and also spoke on the subject of superheat pertaining to refrigeration.

● **SAN DIEGO CHAPTER**, San Diego, Calif., Mar. 29—A buffet supper was served before the business meeting. Merle A. Soden, Educational Director for the California Association, gave a most interesting lecture on F-22, accompanied by visual aids. This first hand information was very beneficial to the members. Prizes were given after the lecture.

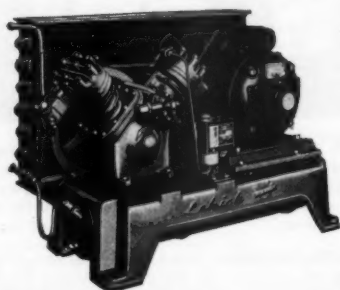
The April meeting was preceded by a buffet supper. Vice-President George Coombs introduced W. B. Colburn from the San Diego Traffic Division of the Police Department, who enlightened and gave some interesting views on the parking situation. The chapter is very pleased to have such close cooperation with the city fathers in matters such as this. Slides and motion pictures were then shown.

● **SOUTHERN TIER CHAPTER**, Elmira, N. Y., Mar. 18—Mr. Raskin of Stangard gave a lengthy talk on refrigeration, using a glass tube evaporator to show the action of refrigerant passing through the tubes. Immediately afterward, the problems of some of the members were brought up and discussed.

● **SPRINGFIELD CHAPTER**, Springfield, Mo., Mar. 31—After a short business session, Educational Director Harry Hoffman introduced D. H. Bodine of the Copeland Refrigeration Corp. as the speaker of the evening. Mr. Bodine used a 1½ hp. Copelametic unit as a demonstrator. This unit was torn down and then reassembled by two chapter members, and all those present had a chance to see the inside workings of the unit. Many questions were asked and answered on this subject. Mr. Bodine also told how to identify the different Copeland compressor bodies and gave a demonstration on putting a seal on one of their model 21 bodies. The 47 members and guests present gained much knowledge from this highly educational program.

On April 28th the speaker was Chan Coombs of the Lehigh Mfg Co., who gave a lecture on the Lehigh condensing unit. He had on exhibit a compressor body with a cutaway section, and the members all showed a great interest in the construction of this machine.

● **TOLEDO CHAPTER**, Toledo, Ohio, Apr. 14—Charles Segal of the Kramer-Trenton Co., and Hugo Smith, Manufacturers Representative, supplied the educational program. Mr.



110 Models

between

$\frac{1}{4}$ H.P. & 5 H.P.

Air & Water Cooled

For High, Medium or Low Temperature
Freon or Methyl Chloride

★ **PACKAGED AIR COOLED**
 $\frac{1}{4}$ H.P. $\frac{1}{3}$ H.P.

★ **STANDARD DUTY AIR COOLED**
 $\frac{1}{3}$ H.P. $\frac{1}{2}$ H.P. $\frac{3}{4}$ H.P.

★ **HEAVY DUTY AIR COOLED**
 $\frac{1}{3}$ H.P. $\frac{1}{2}$ H.P. $\frac{3}{4}$ H.P.
1 H.P. $1\frac{1}{2}$ H.P. 2 H.P.

★ **HEAVY DUTY WATER COOLED**
 $\frac{1}{2}$ H.P. $\frac{3}{4}$ H.P. 1 H.P. $1\frac{1}{2}$ H.P.
2 H.P. 3 H.P. 5 H.P.

See general catalog for
complete specifications.

Ask about our COMBINATION
AIR-AND-WATER-COOLED UNITS
 $\frac{3}{4}$ H.P. through 2 H.P.
for special applications.

Lehigh BLU-COLD

HEAVY DUTY CONDENSING UNITS

Manufactured By

Lehigh Manufacturing Co.

Plant—LANCASTER, PENNA.



Here are two views of the Trenton Chapter Ninth Annual Banquet held April 7th at Leghorn Farms Inn, Morrisville, Pa. There were 150 in attendance and the feature of the affair was the introduction of outgoing officers and induction of new officers. Entertainment of girl singers and dancers, together with brief after dinner talks, interspersed dancing which continued until the early hours of the morning.

Photos by Marcel Liberty

Segal discussed the Therombank and showed slides to illustrate his talk. There were 26 in attendance.

● **TRENTON CHAPTER, Trenton, N. J., Apr. 21**—J. J. Donigan of the Commercial Casualty Insurance Co. was on hand to explain his company's plan to extend the benefits of the Special Disability Plan to those members not now covered by same, providing 50% or more of those not now enrolled sign up for the plan. The balance of the evening was spent in discussing chapter business.

● **TWIN CITIES CHAPTER, Minneapolis, Minn., Apr. 13**—The educational program was a very interesting and instructive picture and discussion by A. E. Meyers on fusetons and fusestats and their operation in regard to the protection of electric motors and also making it possible to use smaller panels.

● **WESTERN MASSACHUSETTS CHAPTER, Springfield, Mass., Mar. 23rd**—Through the

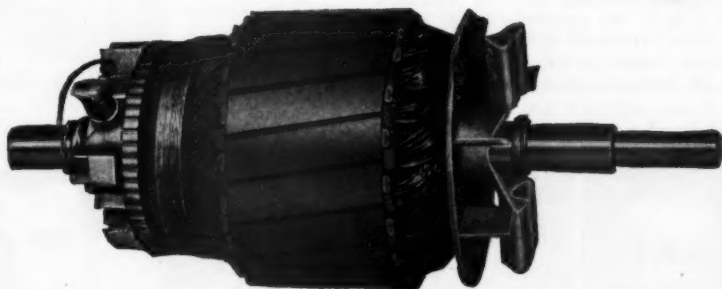
courtesy of U. S. Steel Corp., the chapter obtained to show on their educational program a film entitled "Making and Shaping of Steel" which was enjoyed by all. Refreshments were served to complete the evening.

There were 30 members present at the April 13th meeting, and after business was dispensed with the Educational Committee introduced Victor Hurd of the Swett Bros. Heating & Appliance Co., and John Hurd of the Raytheon Mig. Co., who demonstrated their Home Precipitron which is an apparatus to remove odors, dirt, dust, etc. from the air.

● **WINNIPEG CHAPTER, Winnipeg, Man., Mar. 19**—After a short business session, two educational films were shown. The first, in color, depicted the breaking in of a shop man to outside call work, recording his errors and showing how he overcame them through the help of the older, experienced man who accompanied him during the day.

Genuine Joe says
"Don't be Slow..."

Keep small motors
moving out fast! Stock
Wagner
Motor Armatures"



It's easy to repair small motors when you have a supply of Wagner Ready-To-Use Armatures on hand. Three simple steps . . . and the job is done.

1. Remove old armature.
2. Install a complete new Wagner armature.
3. Test the motor and ship it out.

Keep genuine Wagner Motor Armatures in stock, and release your winders for more profitable work on the larger sized jobs.



Order them today

from any of the 450 Authorized Service Stations or Parts Distributors displaying these signs.



Write for CATALOG MU-40

Every repair shop needs one. It helps determine the catalog number and price of Wagner Motor Parts.



6433 PLYMOUTH AVENUE
ST. LOUIS 14, MO., U.S.A.

ELECTRICAL AND AUTOMOTIVE PRODUCTS

NEWS OF THE EQUIPMENT INDUSTRY



REMA ELECTS NEW OFFICERS

H. F. HILDRETH, Sales Manager, Refrigeration Specialties Division, Westinghouse Electric Corporation, Springfield, Mass., was elected president of the Refrigeration Equipment Manufacturers Association at its annual board of directors meeting held in Chicago, April 1 to 3. He succeeds E. M. Flannery, Vice President of the Bush Manufacturing Company, Hartford, Conn., as head of the association which has be-

Mueller Brass Co., Port Huron, Mich.; Jas. F. Dailey, President, Typhoon Air Conditioning Inc., Brooklyn, N. Y.; H. T. Jarvis, Vice-President, Refrigeration Engineering, Inc., Los Angeles, Calif.; J. K. Noel, Jr., Vice President, Victor Products Corp., Hagerstown, Md.; H. R. Roberts, General Sales Manager, Whiting Corp., Chicago, Ill.; R. L. Sears, Sales Manager, Lynch Manufacturing Corp., Toledo, Ohio; W. J. Stelpflug, Vice President, Hussman Refrigeration, Inc., St. Louis, Mo.



H. F. HILDRETH
President



K. B. THORNDIKE
Vice-President



R. H. ISREAL
Treasurer



G. M. KINGSLAND
Secretary

come the largest group of manufacturers in the mechanical refrigeration and air conditioning industry with 115 members.

Officers and Directors

Other new officers elected at this meeting were: K. B. Thorndike, Vice President, Detroit Lubricator Co., Detroit, Mich., Vice President; R. H. Isreal, Sales Manager, Virginia Smelting Co., W. Norfolk, Va., Treasurer; G. M. Kingsland, Sales Manager, Specialties Division, Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., Secretary.

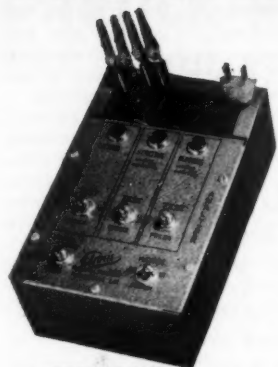
These new officers, with Mr. Flannery, retiring president, become the association's executive committee for the coming year.

New directors of the Association also elected at this meeting are P. L. Craft,

Others continuing to serve as members of the Board of Directors are G. E. Graff, Sales Manager, Ranco, Inc., Columbus, Ohio; F. J. Hood, Vice President, Ansul Chemical Co., Marinette, Wis.; R. H. Luscombe, Sales Manager, Penn Electric Switch Co., Goshen, Ind.; John M. Schlemmer, Sales Manager, General Controls Co., Glendale, Calif.; W. A. Siegfried, President, Superior Valve & Fittings Co., Pittsburgh, Pa.; Hermann Spoehrer, Vice President, Sporlan Valve Co., St. Louis, Mo.; and E. A. Vallee, Vice President of Automatic Products Co., Milwaukee, Wis.

R. Kennedy Hanson continues as executive secretary. General headquarters of the Refrigeration Equipment Manufacturers Association are at 1107 Clark Bldg., Pittsburgh, Pa.

MORE PROFIT—LESS TIME



SPECIFICATIONS

Size: 3" x 5" x 8"

Weight: 1 3/4 pounds

Price: \$16.50

Annie

ANALYZE HERMETICS WITHOUT GUESSWORK

Let Annie Do It!

HERE IS A HERMETIC UNIT ANALYZER which, in a matter of seconds, will positively indicate the nature of any electrical defect.

REVERSES DIRECTION OF RUN
PROVIDES MANUAL STARTING
INDICATES OPEN OR GROUNDED FIELDS
RELEASES STUCK OR FROZEN UNITS—
Stuck units can frequently be freed by reversing the running direction.

ACCURATE—You can estimate closely without fear of having to take a loss

A "must" in any repair kit. Be sure you have it. Don't be embarrassed by your customer asking: "How do you know?"

COLDSPOT REPLACEMENT COMPRESSOR PARTS . . .

A complete set of matched parts ready to assemble into the original housing—designed to fit all Coldspot compressors having 15/32 inch shafts.

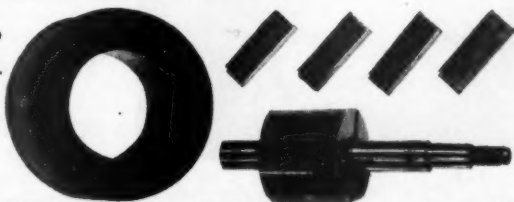
SPECIFICATIONS

All wearing surfaces are tool-hard.

Available in 3 sizes—
1" — 1 1/4" — 1 1/2"

MATCHED SET INCLUDES:

- 1—Rotor
- 4—Vanes
- 1—Cylinder



SOLD THROUGH LEADING WHOLESALERS.
ORDER FROM YOUR REGULAR SUPPLIER,
OR SEND DIRECT INCLUDING HIS NAME.

Matched Set Each \$14.50

Lots of 3, each \$13.80

MECHANICAL ENTERPRISES DEPARTMENT 36

4856 LANKERSHIM BLVD. NORTH HOLLYWOOD, CALIF.

SERVICE ENGINEER

85

May, 1948

SALESMAN PERFORMS PUBLIC SERVICE IN GASOLINE FIRE

TAKE a trailer tank, 2100 gallons of gasoline, a spark. Mix them together and you've got a roaring fire. Then let an Ansul Dry Chemical Fire Extinguisher come into play and watch what happens.



Fire Fighting: top—Burning trailer tank before Hooper's attack; center—Hooper and a fireman fighting fire with Ansul extinguisher and water; bottom—Final extinguishment accomplished by Hooper without aid of water.

All this took place near Detroit recently. C. F. Hooper, Detroit manager of Ansul Chemical Company of Marinette, Wisconsin, was driving back to his

office after demonstrating Ansul Extinguishers at Ann Arbor. He spotted the blazing trailer and went into action.

The fire department had given up the hope of putting out the gasoline fire. Instead, the firemen were concentrating on keeping the truck cooled down in an effort to save part of the equipment.

The fire had been burning for 30 minutes when Hooper arrived. He received permission to use his Ansul Extinguisher and, with the aid of the water line, quickly extinguished the fire. Seven hundred gallons of gasoline were saved.

Newspaper photographers snapped pictures of Hooper fighting the fire. Detroit papers ran the story on page one.

★ ★ ★

HERMETIC ROOM CONDITIONER

AN IMPORTANT new milestone in the field of air conditioning has been achieved by the York Corporation with the perfection of a hermetically sealed operating unit now being featured in the Yorkaire window-sill room conditioner.

The complete refrigerating unit has been sealed by York, not just the compressor and the motor. Because this has made the Yorkaire Room Conditioner both tamper proof and trouble free, the manufacturer is backing its achievement with a five-year guarantee.

Life long satisfaction is virtually guaranteed because of this sealed unit. If, however, service ever should be required, a new replacement unit can be installed in a matter of minutes right in your own home or office.

★ ★ ★

SERIES OF MEETINGS WILL BE STARTED BY PENN

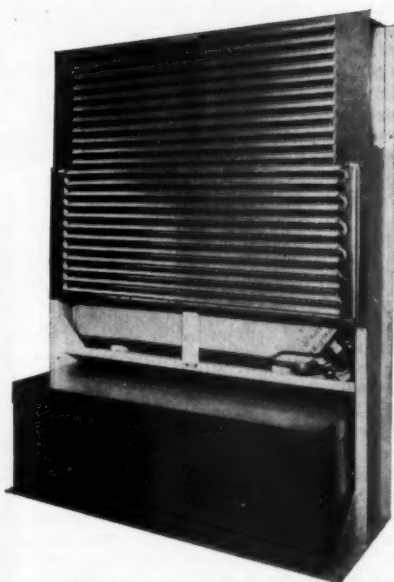
A COMPLETELY new educational show designed as a service to refrigeration engineers and service men will "hit the road" the latter part of June with the first stop scheduled at Spokane, Washington on June 22, according to M. E. Henning, executive vice president and general manager of Penn Electric Switch Co., Goshen, Indiana.

This show was created to give a dramatic visual demonstration in the use, construction, installation and servicing of automatic controls. Included in the

a new, complete, packaged TRUCK REFRIGERATION UNIT that you can install yourself

Simplicity of the new Kold-Hold Packaged Refrigeration Unit pays dividends for you in lower Truck Refrigeration costs. Push the Unit into the truck, bolt it in place and it's ready for operation.

Cooling cycle is started by plugging-in to any 110 volt electric outlet. You can build refrigeration in the truck wherever electricity is available. The "Hold-Over" Plates in the unit will maintain predetermined low temperature of the truck throughout a day's deliveries.



WHAT IS IT? A packaged unit to refrigerate average truck 40° to 50° temperature for a day.

HOW DOES IT WORK? Shipped complete. Push into truck, cut holes for air intake and discharge, bolt to floor and plug into electrical outlet.

IS BODY WORK REQUIRED? No, unit is adjustable to fit most any truck.

HOW LONG TO FREEZE PLATES? Ample plate refrigeration in 8 to 10 hours, under any weather conditions

HOW ABOUT LONG RUNS? Truck Contents are easily protected 2 days or longer by simply plugging-in at overnight stop.

WHAT IS OPERATING COST? Compressor operates for a few cents a day. Any refrigeration man can service.

HOW DOES IT COMPARE WITH ICE? More dependable refrigeration at less cost with no slime or bother.

IS THIS NEW? It is new only in that it is a packaged unit. Kold-Hold Refrigeration Plates have given satisfactory operation for hundreds of users for over 15 years.

Write for free literature.

KOLD-HOLD

Jobbers in Principal Cities

KOLD-HOLD MANUFACTURING CO.,

PROCESSING
protects every step of the way

TRANSPORTATION
STORAGE

502 E. Hazel St., Lansing 4, Michigan

elaborate equipment are giant controls which actually operate, colored slides, and a "live" board illustrating an entire refrigeration system in operation. The system is ingeniously diagrammed on a large board with various colored lights to show the action of each function in the system.

Penn has had considerable experience in creating and staging educational meetings of this nature. Before the war, the company pioneered demonstration shows with the objective of improving service to the consumer by education of the service man. The nation-wide acclaim from the trade for Penn's educational efforts in the past has definitely proved the need for such meetings. The war period, however, made it necessary for Penn to discontinue these meetings until the present. Thus, the current show is a revival of previous ones but is entirely new from stem to stern and it is confidently expected to be even more beneficial to the trade.

Initially, the show will appear in various Western cities under the direction of R. H. Luscombe, general sales manager of the company. Meetings are being arranged and sponsored in each city by local jobbers of Penn controls. According to Mr. Luscombe, each meeting will give the most thorough demonstration of controls possible in a single evening. After the regular session, individual installation problems will be discussed.

At present the Penn "travelling" Refrigeration and Air Conditioning Control Show is scheduled to appear in the following cities: Spokane on June 22; Seattle on June 25; Portland on June 28; Sacramento on July 1; San Francisco on July 7; Fresno on July 9; Los Angeles on July 12; San Diego on July 14; Salt Lake City on July 19; and Denver on July 22.

★ ★ ★

WHOLESALE GOLF

CENTRAL Refrigeration Wholesalers Association will hold its third annual wholesalers-manufacturers golf tournament at the Itasca Country Club, Itasca, Illinois, on June 18, 1948. This event is looked forward to with great anticipation by the manufacturers and wholesalers in the Illinois-Wisconsin area particularly. The day will be committed to a full day of golf, dinner, prizes

and entertainment. Tickets are available by writing to Gentry Russell of Refrigeration Supply Jobbers, 2511 No. Pulaski Road, Chicago, Ill., who is the golf chairman.

★ ★ ★ WHOLESALE RUNS CONTEST FOR RETURN OF DRUMS

THE California Refrigerator Company with stores in San Francisco and Oakland have hit on a rather unique contest to encourage all contractors and servicemen in their area to return at once every available empty Freon Cylinder. For the next two months they



John E. Pierson of the San Francisco Refrigeration Co., making his guess on the weight of "Freon-12" in the drum, while Bert Holyoake, manager of the California Refrigerator Company's San Francisco Store, points out the prizes he can win with the right guess. The contest is aimed at encouraging the return of empty cylinders.

will have a partially filled 35-lb. standard drum on display at each of their stores inviting their customers to guess the exact weight of the Freon contained therein. A free guess can be entered for every cylinder turned in and those shipping returns direct to Kinetic need only list the number on the drum and date shipped. Duplicate prizes will be offered from each store for the closest guesses as follows:

1st Prize—\$15.00 New Hat or Cash.

2nd Prize—\$10.00 Selected Tools.

3rd Prize—\$5.00 Selected Tools.

Perhaps other ideas along these lines

Manual Flushing OF PENN WATER VALVES ... is easy!



Just slip a screw driver under the range spring and lift to release the tension. That's all you do to flush and clear the valve seat of foreign matter which may accumulate, especially in new installations. Here's another big advantage of Penn water valves which are protected from corrosion and sediment because water can't come in contact with the range spring or sliding parts.

Built in threaded and flanged styles, in a wide range of sizes. See your wholesaler or write for bulletin R-1986-B, giving complete details.

Penn Electric Switch Co., Goshen, Ind. Export Division: 13 East 40th St., New York 16, U.S.A. In Canada: Penn Controls Ltd., Toronto, Ontario.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, ENGINES, PUMPS AND AIR COMPRESSORS

will help to bring the empties rolling back to the factory and avert a possible Freon shortage now predicted due to the lack of containers in which to ship the gas.

★ ★ ★

NEW "FREON" PLANT OPENS IN EAST CHICAGO, INDIANA

A NEW plant has begun manufacturing "Freon" fluorine refrigerants in East Chicago, Ind., and officials of Kinetic Chemicals, Inc., say it will increase production capacity for these products by sixty per cent.

Construction of the new plant started last August.

Shipments from East Chicago are in ton-capacity containers only. Smaller cylinders will continue to be shipped from Carney's Point, New Jersey. However, Kinetic officials warn, more "Freon-12" cannot be shipped unless more shipping containers become available.

Raw materials are now in adequate supply for the year's production, they say, and shipments will be increased provided sufficient empty cylinders are returned. With the shortage of shipping containers so acute, production and distribution face drastic cuts despite the added manufacturing capacity. Return of empties has dropped far below the danger line, and for ten months Kinetic has been shipping loaded cylinders far in excess of the empty ones returned. The end of the company's reserve stocks of empty cylinders is nearly at hand, and new ones are too slow in being delivered, owing to the steel shortage, to solve the problem. Large orders have been placed for new cylinders.

★ ★ ★

BEN-HUR APPOINTS SOUTHERN AND WESTERN DISTRIBUTORS

SEVEN new distributors have recently been appointed to handle Ben-Hur Farm and Home Freezers in Southern and Western States, according to word from Mr. A. B. Bechaud, Vice-President and Sales Manager of Ben Hur Mfg. Co., Milwaukee, Wisconsin.

These include: Covington Distributing Co., Houston, Texas, who will cover East Central Texas; James-Stevens Co., Albany, Georgia, and Power Electric &

Supply Co., Macon, who will handle sales in Southern and Central Georgia respectively; Tri-States Distributing Co., Shreveport, Louisiana, who will handle Northern Louisiana; Orgill Bros. & Co., Memphis, for Mississippi, Arkansas and Western Tennessee; Standard Supply Co., Salt Lake City, for Utah, Idaho, Eastern Nevada; and Western Implement Merchandisers, Inc., Los Angeles, who will be responsible for sales in Southern California. All these organizations are leaders in the appliance field in their states and are capable of offering well-rounded assistance in selling, merchandising and service on Ben-Hur Freezers.

The new appointments are in line with the Ben-Hur policy of adding distributorships only as production and material facilities permit satisfying the market with Ben-Hur Freezers.

★ ★ ★

WAGNER ELECTRIC BUYS WAREHOUSE

WAGNER Electric Corporation, St. Louis, Missouri, nationally-known manufacturer of electrical and automotive products, announces the purchase of a modern brick warehouse in St. Louis containing 215,000 square feet of useful floor space.

The newly acquired building covers one entire city block and has four floors, a mezzanine, and a high-ceiling basement.

This new addition to Wagner's extensive main plant properties is certain to further facilitate the handling of the various Wagner products.

★ ★ ★

BORDEN BRANCH IN MAINE

A. E. BORDEN CO. INC., refrigeration wholesaler in Boston, has opened a branch warehouse in Portland, Maine.

The new store is located at 384 Fore Street, Portland, at the foot of Exchange Street and will be managed by Leo J. Heffernan.

Mr. Heffernan has been with Borden's for several years. He will be assisted by Albert Reed of Portland, who was formerly engaged in the refrigeration service field.

A complete stock of compressors, coils and supplies for the refrigeration trade will be carried together with a line of bottled gas and industrial supplies.



Introducing...

BY POPULAR DEMAND!

**COMPLETELY NEW REFRIGERATOR
PARTS—ENGINEERED BY WATSCO**

T-600 WATSCO TERMINAL #6

Designed especially for STEWART WARNER SEALED UNIT, by popular request—in addition to the rest of our Terminal family.

All WATSCO Terminals can be installed on the job in 5 minutes with only ratchet wrench or pliers.

F-8 WATSCO FLAPPER

Designed especially for FRIGIDAIRE, 1938 and later models ... in addition to the rest of the Watsco Flapper family.

WATSCO Flappers are made of the finest Spring Steel, checked for precision accuracy.



Most wholesalers stock WATSCO products. However, if your wholesaler cannot supply you, order DIRECT from us.

**WRITE FOR
OUR DESCRIPTIVE CIRCULAR**

Wagner

TOOL AND SUPPLY CORP.

1300-43rd. Ave. Dept. RAB, LONG ISLAND CITY 1, NEW YORK

OUR APOLOGIES

KRAMER TRENTON COMPANY
Heat Transfer Products **KRAMER**

(Name 627) TRENTON & NEW JERSEY

April 21, 1948

The Refrigeration Service Engineer
435-435 North Waller Ave.
Chicago 44, Ill.

Attention: H. T. McDermott, Editor

Subj: PROTEST FROM OUR WOMEN FOLKS

Dear Mr. McDermott:

After untold laborious effort we have succeeded in capturing the handsomest manufacturer's representative in the refrigerating industry and now you expropriate him and give him to another company.

We, the undersigned, who constitute the women folk in the Kramer Trenton Company Organization, bitterly protest against this arbitrary and unfair act on your part. Nothing less than the most abject apology from you, with due restitution in the form of publishing Bob Holland's picture in full page with the proper notation will satisfy us.

Yours very truly,
KRAMER TRENTON COMPANY

Edna G. Gorman
Myrtle G. Gorman
Alb. Gorman
Christine Gorman
Theresa Gorman

Sam Gorman
Agnes Gorman
Chas. Gorman
Marion Gorman
Edith Gorman



This is Bob Holland about whom this bitter controversy rages. To him we offer our apologies for having given his face to another name in the March issue.

To the Members of the
Kramer-Trenton "Bob Holland Fan
Club"
Trenton, New Jersey
Dear Ladies:

We of *The Refrigeration Service Engineer* organization regret that distance prevents us from personally apologizing to each of you for the unforgivable error we committed in the March issue of our publication.

A poll of the girls of our organization unanimously shows that they, too, concur with your "Bob Holland Fan Club" that you have every reason for your vociferous objections to the attempted

sabotage to place Bob with another company. Confidentially, our gals expressed the opinion that they wished our organization could boast of someone as handsome as Bob. I flatly refused their request to ascertain if the individual in question was still enjoying "Single Cussedness."

I know any apology under the circumstances will sound weak. But after assigning two of our best private "eyes" (detectives to youse gals) and completely upsetting our office routine for several days, we have found the culprit who was responsible for this unforgivable deed. The fact that he is the father of seven children, working hard to feed seven hungry mouths (in these days of high prices), suggests that justice should be tempered with mercy in the punishment to be given.

Our "gum shoes" ascertained that our new printer inadvertently transposed Bob's picture, although our copy was correctly prepared in the office. I'll bet Mr. De Jarlais never knew what a handsome guy he was until he saw his picture in *The Refrigeration Service Engineer*.

However, girls, to assuage your feelings, we are republishing Bob's picture with the correct caption (we hope) and our humble apologies. We trust you will accept this correction as a sincere effort on our part to right a grievous wrong.—
Apologetically yours, H. T. McDermott,
Publisher.

★ ★ ★

C & S EQUIPMENT CO.

THE formation of the C & S Equipment Co. Inc., 2103 S. San Pedro St., Los Angeles 11, California, has recently been announced by Eugene W. Smith, President and Charles W. Chidester, Vice-President. They are operating as manufacturers' representatives for the states of California, Arizona and Nevada. To date, they represent in the above states; Remco, Inc., Halstead & Mitchel, and Madison Products Co. They represent Drayer-Hanson in Southern California and Arizona.

Mr. Smith has been associated with the refrigeration industry for 15 years—10 years with Worthington Pump and Machinery as district representative, 2½ years with Drayer-Hanson as manager of industrial sales, and 2½ years with Pacific Refrigeration Co. as assistant manager and chief engineer.

2 new appliance testers by Simpson

MODELS 391 and 392
A.C. - D.C.
Volt-Wattmeters

INSTRUMENTS THAT STAY ACCURATE

These two Simpson testers are designed for simultaneous reading of volts and watts. Each has two separate 3" square meters, one for volts and one for watts. Each has built-in cord and plug for connecting to line outlet, and receptacle for connecting appliance under test. There are no leads to connect. Readings register immediately when plugs are connected. Separate, uncrowded scales make quick, accurate readings easy. Each meter has two ranges, selected by separate toggle switches with positions clearly indicated by white figures recessed in the molded bakelite case. The low power consumption of these instruments and their high efficiency result in negligible loss and error in reading.



Model 391 (3000 watts max.)

Ranges, A.C. or D.C.

Volts: 0-130, 0-260

Watts: 0-1500, 0-3000

Size: 3" x 5½" x 2½"

Weight: 2 lbs.

Shipping Weight: 3 lbs.

Dealer's Net Price.....\$30.00

Leatherette Carrying Case—\$5.00

Model 392 (5000 watts max.)

Ranges, A.C. or D.C.

Volts: 0-130, 0-260

Watts: 0-1000, 0-5000

Size: 3" x 5½" x 2½"

Weight: 2 lbs.

Shipping Weight: 3 lbs.

Dealer's Net Price.....\$35.00



SIMPSON ELECTRIC COMPANY

5200-18 West Kinzie Street

Chicago 44, Illinois

In Canada, Bach-Simpson, Ltd.

London, Ont.

Mr. Chidester has been associated with the refrigeration and heating industries for 14 years, having spent that time with the Pacific Scientific Company. The last 6 years, he was manager of the Refrigeration and Air Conditioning Division of the Los Angeles office.

★ ★ ★

CROSELY CAMPAIGN

TEN messages to every able-to-buy family in the United States, between May 7 and June 23, is the basis of the new Crosley Shelvador "introduction" campaign, announced in Cincinnati in April by N. C. Macdonald, General Sales Manager, Crosley Division, the Avco Manufacturing Corporation.

Number of messages involved, according to Macdonald amounts to more than 381 million. A four-color, two-page kickoff ad appeared in May in *Colliers*, *Saturday Evening Post*, *Lock, Life*, *Parade*, and *This Week*.

Theme of both ads is a dramatization of the five storage zones found in the new refrigerator. An amusing little figure of an Eskimo indicates the "freezin-cold" compartment, a jovial grocery boy points up the "norm-cold" section of the refrigerator, a little guy in a so'wester has his eye on the "moist-cold" compartment, while a little fat Arab smiles happily at the "ever-dry" storabin.

A lovely "Shelvador-lady" keynotes the ad as she points to the refrigerator door and the slug-line of the campaign, "Only Crosley Has the Shelvador."

★ ★ ★

ALLIN DROPS PRICES

A PRICE reduction on the Liquid Eye has been announced by the Allin Manufacturing Company of Chicago. The change becomes effective on June 1, 1948. The reduction in price was made possible because of the increased Liquid Eye sales resulting from its enthusiastic reception by the refrigeration industry.

The Liquid Eye, first introduced to the industry in December, 1947, correctly indicates the refrigerant charge. It is a precision engineered indicator that overcomes many obstacles encountered in the past. Streamlined yet light and sturdy, the Liquid Eye contains a heavy wall of pyrex tube constructed to withstand any refrigerant pressure.

The Liquid Eye can easily be mounted in any position to give accurate information with regard to the refrigerant charge. The Liquid Eye is available at your local jobbers.

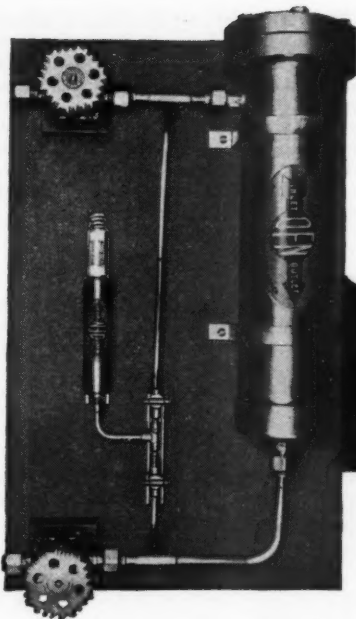
★ ★ ★

G.E. DROPS PRICE OF MOTORS

A NOTHER major reduction in prices of products of the General Electric Company, the second in 1948, was an-



W. G. Haas, Crosley Great Lakes Regional Sales Manager, left, and Al Nellis, General Manager Appliance Division, Walding, Kinnan and Marvin Company, Toledo, Ohio, are shown examining one of the five new 1948 Crosley Shelvador refrigerators for which Walding, Kinnan and Marvin have recently been appointed exclusive distributors.



... NOW
*a portable
 all-inclusive*

DFN MOISTURE CONTROL UNIT

*for Positive
 Liquid-line Drying*

- 1. Tells if system is wet**
- 2. Thoroughly dries it**
- 3. Then proves it's dry**

This new DFN System of Moisture Control supersedes all present drying methods. It eliminates guesswork — dries to a positive and proven degree — prevents call-backs due to insufficient drying—saves waste and time on the job.

The unit is ready to use, easily carried from job to job, in the field, shop or factory. Available in plain panel mounting or in sturdy carrying case, as desired. Be sure to see your wholesaler for full details—or write us for detailed bulletin.

McINTIRE CONNECTOR CO.
 255 Jefferson St. Newark 5, N. J.

POSITIVE DRYING

- at any liquid temperature up to 150° F.
- to -20° dew point in one pass
- to -60° dew point in 24 hour operation.

VISUAL PROOF

Moisture Indicator shows degree of dryness before and after dehydrator. Tells when drier cartridge is saturated.

LOW COST DRYING

One drier cartridge, charged with Ducal Drierite, manufactured by the W. A. Hammond Drierite Company, will dry the equivalent of ten average one-ton systems. As demonstrated at the 5th All-Industry Exposition, a single cartridge has a proven capacity in excess of 13 teaspoonfuls of water.

nounced recently by Charles E. Wilson, president. The latest reduction, a flat five per cent, is effective April 16, and applies to certain lines of Apparatus Department products on which the company does an annual business of close to \$200,000,000.

Products affected by the new reduction are fractional-horsepower motors, switchgear, conventional distribution transformers, lightning arresters, feeder regulators, cutouts, and power capacitors. This is the company's second price reduction on fractional-horsepower motors.

★ ★ ★

REDUCE PRICE OF FITTINGS

PPRICE reductions averaging ten per cent in the complete line of "Stream-line Ful-Flo" refrigeration flared fittings were announced as being in effect immediately by the Mueller Brass Co., Port Huron, Michigan.

This latest price reduction in Mueller Brass Co. products involves some 250 catalog items sold to refrigeration equipment manufacturers, wholesalers and service engineers. These same fittings are largely used, too, in the automotive and liquified petroleum gas equipment trades and represent a substantial part of the Mueller company's total business volume.

★ ★ ★

ACE HAS NEW FREEZER

IN RESPONSE to repeated demands from its customers, Ace Cabinet Corp. of New Bedford, Mass., announces a new home and farm freezer.

This model has white baked enamel sides and top. It is available in self-contained and remote models.

Ace also manufactures a full line of ice cream storage cabinets, soda fountains, bobtails, sandwich units, and frozen food display cabinets.



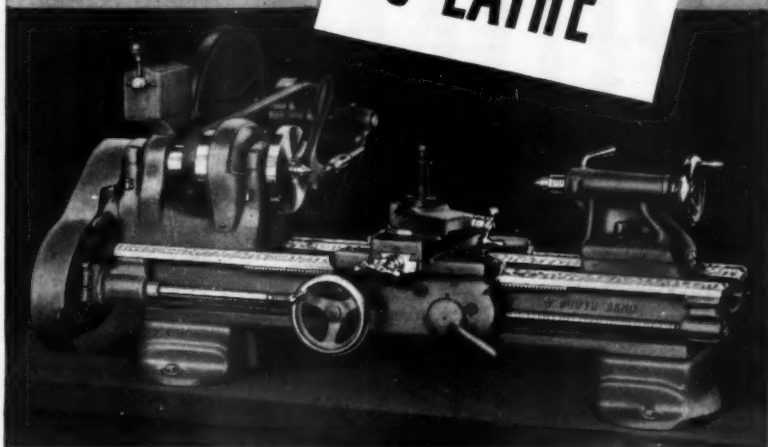
Five key men of the Nash-Kelvinator Corporation Sales Organization were in Columbus, May 6-8, 1948, to attend the second of a series of Sales Training Programs on the Kelvinator-refrigerated electric water cooler. The program was held at The Ebco Manufacturing Company, 401 West Town Street, Columbus, Ohio.

Shown examining the Kelvinator condensing unit are:
SEATED L-R: G. T. Etheridge, Commercial and Parts Sales Manager, Nash-Kelvinator Corporation, Detroit; A. R. Benua, President, The Ebco Manufacturing Company, Columbus; and H. C. Patterson, Commercial Sales Manager, Nash-Kelvinator Corporation, Detroit.

STANDING L-R: I. E. Weber, Kelvinator Commercial & Parts Sales Manager, Cincinnati; Douglas C. Salisbury, Kelvinator Commercial Field Salesman, Cleveland; C. G. Fosnaught, Ebco, J. J. Spring, Kelvinator Commercial and Parts Sales Manager Pittsburgh; John Rolfes, Sales Promotion and Advertising Manager, Cincinnati Kelvinator Zone; W. L. Winchester, Ebco, Columbus, and Wayne Stafford, Kelvinator Commercial and Parts Sales Manager, Cleveland.

Every Shop
Needs A

SOUTH BEND 9" LATHE



You can do better service work with a South Bend 9" Lathe. Many parts can be reconditioned or made in your own shop. This will speed-up jobs and save the cost of having work done outside. And, this precision-built lathe will enable you to duplicate original factory tolerances.

Write for Catalog 9-F or see our local distributor. You will find him listed under "Machine Tools" or "Lathes" in your classified telephone directory.

9" MODEL C LATHE SPECIFICATIONS

SWING—9¼" over bed and saddle wings, 8½" over saddle cross slide.

BED LENGTHS 3, 3½, 4, and 4½ feet

DISTANCES BETWEEN CENTERS . . 16 to 34 inches

MAXIMUM COLLET CAPACITY ½ inch

SPINDLE BORE ¾ inch

SPINDLE SPEEDS—Six 41 to 658 r.p.m.

POWER LONGITUDINAL FEEDS—Fourteen0021" to .0156"

THREAD CUTTING RANGE—45 pitches 4 to 160 per inch

9" X 3' MODEL C BENCH LATHE
with 1/4 h.p., 1 ph., 60 cy., 115 V.
motor, and switch—f.o.b. factory.

\$171.60

NEW 14-INCH DRILL PRESS

A ruggedly built tool unsurpassed for accuracy, ease of operation and dependable performance. Features free-floating spindle, precision ball bearings, quick-acting belt tension release, etc. Prices include 1/3 h.p., 1 ph., 60 cy., 115 V. motor and switch—f.o.b. factory.

Bench Model, \$129.30
Floor Model, \$144.30



SOUTH BEND LATHE WORKS

Building Better Tools Since 1906

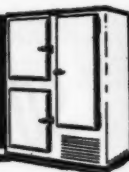
529 EAST MADISON STREET, SOUTH BEND 22, INDIANA

SERVICE ENGINEER

97

May, 1948

NEW IMPROVED

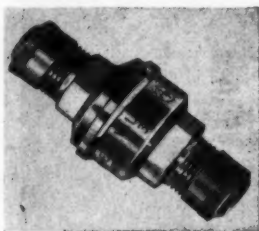


AND EQUIPMENT

Information in this department is furnished by the manufacturer of the article described and is not to be construed as the opinion of the Editor.

Check Valve

A NEW refrigerant check valve, the Automatic Products Company's Model 234, is being featured and in stock this month at leading refrigeration wholesalers throughout the country.



The AP Model 234 refrigerant check valve was first introduced to the industry at the Refrigeration Show in February. Installed in the suction line of the low temperature evaporator of a two-temperature system, the AP Model 234 refrigerant check valve prevents backflow of the refrigerant from high to low temperature evaporator during the off-cycle period.

Pressure drop through the AP Model 234 refrigerant check valve is negligible. In actual tests, with a load of $\frac{1}{2}$ ton Freon-12, pressure drop was less than 1 lb. Positive seal-off at all pressures is accomplished by combining a metal valve disc with a carefully finished brass seat. Because disc and seat resist corrosion, the AP Model 234 refrigerant check valve can be used with all refrigerants.

Installation of the AP Model 234 refrigerant check valve is simple, because this check valve can be installed in any position. Valve disc is stem-guided and held in place by light spring pres-

sure, not by gravity. Position, therefore, does not affect operation.

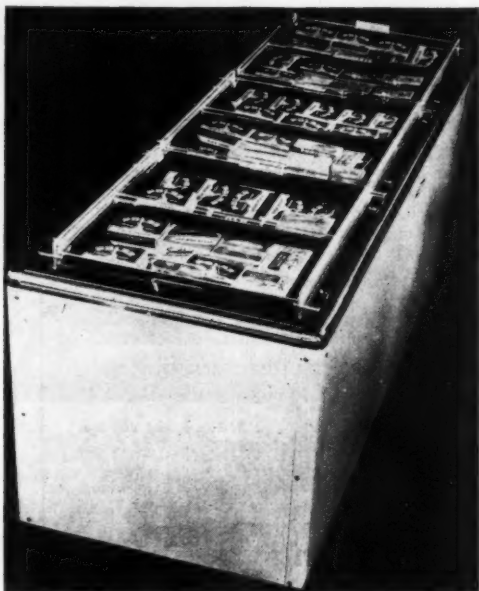
Complete performance and construction data on the AP Model 234 refrigerant check valve is contained in a new bulletin just off the press. Contact your wholesaler or Automatic Products Company, Milwaukee 10, Wisconsin, for your copy.

Plastic Tops

EVEN the smallest storage-type frozen food cabinet can now be converted into

line of crystal-clear sliding top sections of Plexiglas. Known as "C-Thru Tops," they are available to food retailers through Banner Engineering Company, Milwaukee, Wisconsin. Notable attributes are: extreme lightness, shatterproofness, resistance to warp, and easy cleaning—plus a design and method of installation so simple that it is only necessary to remove the solid tops from the old freezer cabinet and set the new Plexiglas unit into the opening.

Available in sizes from four-hole, six-hole, eight-hole, ten-hole and twelve-hole cabinets, prices range from \$29.75 to \$39.25. Working with Banner Engineering



a self-service display cabinet without the necessity of purchasing new and costly fixtures. The means is a new

in the development of the product was Universal Plastic Products Company, Milwaukee.



FOR DEPENDABILITY

on your next job choose a

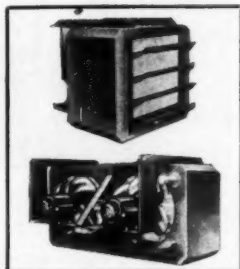
MILLS

a condensing unit for
every installation

Mills Industries, Incorporated • 4100 Fullerton Avenue • Chicago 39, Illinois

HOWE REFRIGERATION KNOWN THE WORLD OVER

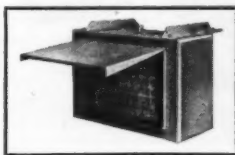
HOWE-CONDITIONAIRE UNIT COOLERS



Ceiling type, for all commercial purposes, these Howe-Conditionaire unit coolers have all-steel welded hot galvanized fin coil suitable for all refrigerants. Coil has permanent 100% fin contact. Heavy gauge steel, sweat-proof, corrosion-free housing; four adjustable deflectors to insure uniform air circulation; generous size motors for long life. Correct design insures high humidity for storage of fresh food products.

HOWE-CONDITIONAIRE Rapid Freeze Cooler

Designed for that low temperature job . . . for continuous heavy duty loads. Cork insulated housings make possible defrosting without rise in room temperature. Use Howe-Conditionaires for efficiency...permanency...safety.



HOWE ICE MACHINE CO.

2825 Montrose Ave., Chicago 18, Illinois • Distributors in Principal Cities

EXCLUSIVE REFRIGERATION EQUIPMENT BUILDERS SINCE 1912

SERVICE ENGINEER

99

May, 1948

Thermometer

THE Jas. P. Marsh Corporation, Dept. Q-2, Skokie, Ill., has announced a dual purpose thermometer — The Marsh "Duo-Therm" — for use in connection with refrigeration units of all kinds ranging from locker plants and food stores to home freezers. The instrument contains two thermometers neatly combined to indicate freezer and room temperature as illustrated. Upper ("freezer") scale, reads from -30° to +65° F.; lower ("room") scale, from +20° to +80° F. The "freezer" thermometer is a Marsh distant reading Bourdon tube type provided with five feet of capillary tubing so that the temperature-sensitive bulb can be placed in the refrigerator and the instrument located outside at any convenient viewing point. Room temperature is indicated by a Marsh bi-metallic thermometer. The capillary tubing



is slender enough to pass between the gasket and jamb of a closed refrigerator

door and this, along with a convenient mounting bracket, makes installation a simple job done in a few minutes.

The "Duo-Therm" is produced in an attractive black satin case with chromium rim. It is described by the manufacturer as highly accurate and ideal for giving a constant check on refrigeration units.

Check Valve

THE AMP Corporation, St. Louis, Mo., has announced the development and manufacture of a new check valve for liquids or gases. Made of type 18, No. 303 stainless steel throughout, the valves operate on a pressure drop of 6 lbs.



Advantages claimed in the design of the new valve include a larger seat area, soft rubber washer and rounded edge, "self-washing" seat that assures positive closure. The valves are small in size,

being approximately 2" in over-all length and are thoroughly tested against leakage on assembly under 50 lbs. pressure.

Two types are stocked—with $\frac{1}{4}$ " NPT outlet and $\frac{1}{4}$ " 45° flare inlet, and with $\frac{1}{2}$ " NPT outlet and $\frac{1}{2}$ "—14 NPT flat flare inlet. Other sizes and threads from $\frac{1}{4}$ " upwards are available on special order. The makers claim unusually satisfactory service from these new check valves in use on their line of AMP carbonators.

Kromover

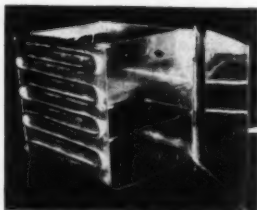
RUSTPROOFING metal, reglazing spots, tinning bearings—in fact, any tinning operation—can be done quickly and easily with the new "Kromover" touch-up pencil, according to the manufacturer. It will tin oil-impregnated bronzes, burned cast iron, all stainless steel,

and black iron without removing mill scale. The only preparation necessary is wiping off the oil and dirt with a clean rag; the surface tinned will be good for soldering but a little darker than if the metal had been ground down beforehand. The protective coating formed by the pencil is corrosion-resistant and, unlike tin-plating, it sacrifices itself to protect the iron or steel on which it is applied. Dismantling is usually unnecessary for applying the pencil. It can be used for difficult tinning operations in the field by repair and installation crews. It goes on at 450 F. and can be applied with oxy-acetylene, air-acetylene, or city gas flame. A descriptive folder is available upon request.

Evaporator

JUST announced by Tenney Engineering, Inc., is a "Kwik-Freeze" household evaporator.

It is an all-copper unit built to accommodate most types of ice cube trays in use today. The shelves may also be used for storage of food trays by removing the ice cube trays.



Material used in the construction of the body of the unit is stated as heavy gauge cold-rolled copper, fabricated to provide a rigid, self-supporting casing with reinforced shelves that will not sag.

The manufacturer states the unit is equipped with a spring hinge door, control panel, accumulator and adjustable hangers.

The entire unit is protected against discoloration with an electro-tin-plated satin finish which accentuates the well-molded lines and adds a note of beauty to harmonize with all styles of refrigerator interiors.

The PREMIER KIT

Reconditions Recessed or Flush
Valve Ports in Minutes!



Now



See This Time and Money
Saving Tool at Your Jobbers.
Typical testimonial letter

APPLIANCE SERVICE COMPANY

304 Alwine Avenue
Greensburg, Penna.

February 10, 1948

The Premier Co.
891 Park Ave.
Baltimore 1, Md.

Attention: Mr. H. W. Goodhart
Dear Sir:

I have been using the PREMIER SELF
ALIGNING VALVE GRINDING KITS for
the past three or four months, and would
like to take this opportunity to thank you
for coming out with such a tool.

Since using this kit, I do not see how
I got along without it all these years. It
has saved me money and valuable time
in waiting for replacement parts.

Very truly yours,

APPLIANCE SERVICE COMPANY

(signed) Paul Brandstetter
Service Manager

PB:ct

THE PREMIER CO.

891 PARK AVENUE • BALTIMORE 1, MD.

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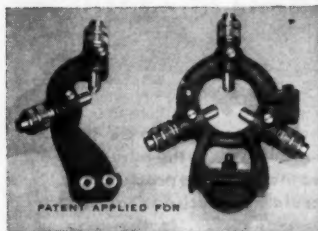
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Work Supports

TO PROVIDE quicker and more efficient operation on certain classes of lathe work, a de luxe type follower rest and center rest have been developed by the South Bend Lathe Works, 207 East Madison Street, South Bend 22, Indiana.



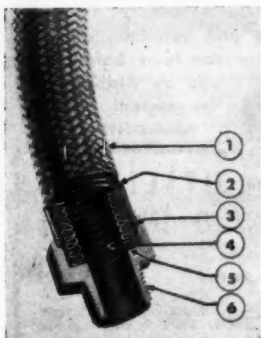
Principal features of both the follower rest and center rest are the wrenchless adjustment and locking of the

jaws. Each jaw has a large knurled knob for adjusting the jaw position, and a thumb screw for locking. An ingeniously designed double acting compound screw thread provides approximately 3/16" jaw movement for each revolution of the adjusting knob. Smooth action, with just enough resistance to hold the jaw securely in position until it is locked with the thumb screw, permits quick adjustment with extreme precision.

The jaws are made of brass and slide through precision steel sleeves which are pressed into the supporting frame. Manufactured to close tolerances throughout, the jaws and other parts are easily replaceable. Both the follower rest and center rest are available for current models of South Bend lathes.

Flexible Hose

THE Brockway Company manufactures a standard line of Uniflex bronze seamless flexible metal hose. This hose with high tensile bronze braid and mechanical couplings attached is assembled to customer's specifications at the factory.



A new quick soldered coupling has been added to the standard line for use where moderate temperatures are involved—not to exceed 300 degrees F. The new quick soldered couplings are available either completely assembled to hose at

factory or can be purchased separately for assembly by the purchaser. Instructions for assembly are provided.

Features of this quick soldered coupling are as follows: It is a two-piece male coupling including a male body and a loose collar. The collar is designed so that when the hose is cut, it holds the braid tight, preventing unraveling and slipping, thus producing a hose and braid end automatically prepared for soldering. When soldered to the body coupling, it becomes one solid unit. The collar also controls the height of the solder leaving an exposed length of collar without heat injury to either hose or braid. It protects and supports the hose at the most vulnerable point, thus eliminating any need for reinforcement.

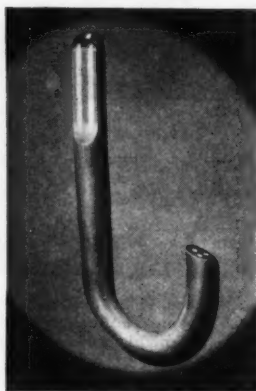
Numbered references to the illustrations are: 1—Bronze braid which prevents elongation. 2—Point where collar protects hose end. No solder and no heat at this point which means longer life. 3—Point where solder stops. 4—Seamless bronze flexible metal hose which is leak-proof. 5—Coupling body where seal takes place. 6—Standard IPS Male Thread.

Uniflex bronze seamless flexible metal hose is sup-

plied in 25-foot coils, scientifically joined from standard lengths and completely encased in one high tensile bronze braid.

Solder

M. A. BOYLE, sales manager of the Solder Division of Alpha Metals, Inc., announces a new development in acid core solders recently engineered by the research staff. This new product will be known as Alpha Tri-Core "Leakpruf" Acid-filled Solder. Heretofore Tri-Core has been available only with the rosin-filled flux for radio and electrical work.



The development of this hard acid flux is the first innovation in the field of acid core solder since 1929. A few of the advantages of Alpha's Tri-Core "Leakpruf" Solder are:

Its ability to solder stainless steel, monel, nickel and other metals hitherto not usually solderable with a core solder.

Three cores instead of one—with no premium in price.

The synthetic acid used is considerably more active as a flux than the usual zinc chloride, yet only half as corrosive.

Furthermore, it is readily soluble in water, and is easily washed off.

A definite soldering sequence is automatically developed by three cores of flux. Hence "cold solder joints" are practically eliminated. There is always the proper volume of flux at the moment the solder begins to

Cleans Condenser Units Quickly ... Completely

IDEAL "Hand-Type" CLEANER

Here you see the Ideal "Hand-Type" Cleaner with 5" nozzle and brush attachment being used to vacuum dirt, dust and lint from the condenser unit of a frozen food dispenser in a grocery store. It's equally effective for vacuuming dirt from the inside of cabinets and other hard-to-get-at places. Powerful 1½ H.P. continuous duty motor removes every trace of dust, matted dirt and lint. Can also be used as a blower. Has attachments for spraying and drying. Unit is light weight, only 14½ lbs. Also available in Medium Duty size—2½ H.P., 9½ lbs.—IDEAL INDUSTRIES, Inc., Sycamore, Illinois.



IDEAL

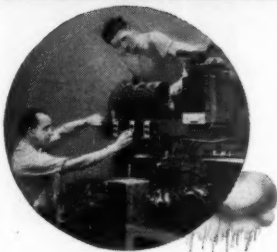
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Our students receive specialized training to fit them for substantial careers in industry. Practical technical courses prepare them as *Refrigeration Servicemen in 6 months; Refrigeration and Heating Servicemen in 12 months; Refrigeration, Heating and Air Conditioning Technicians in 2 years.* Classes begin in January, April, July, September. Write for free "PHOTO STORY". Its 49 action photos tell the story of the practical training students receive to help fit them for responsible positions.

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SERVICE ENGINEER

103

May, 1948

flow to assure a perfect bond. The three core construction promotes faster melting. The flux insurance and the increased melting speed result in stronger, more dependable bonds.

In developing this new core solder, Alpha Metals has produced a flux that is not a zinc chloride, yet it is much more active in its ability to solder metals. Though only half as corrosive as zinc chloride, this new solid acid flux will solder such metals as stainless steel, nickel, and monel. In fact, tests show that the only metals which this flux will not solder are aluminum and magnesium. (Both of these are considered not solderable by the United States Bureau of Standards.

The manufacturer points out that the technique of using a core solder is quite different from using a separate flux and wire or bar. With the latter, the flux liquid or paste is first applied, then the solder is heated and flowed onto the metal. When a core solder is used, it is absolutely necessary that the work be heated by the iron or flame. After this, the core solder is introduced to the heated metal, which has been brought up to the liquidus point of the solder, so that the flux can flow onto the job ahead of the molten solder, thereby assuring a permanent bond.

If any flux core solder is flowed directly off the soldering iron or if a flame is directed at the solder itself, the flux will be so diffused by the heat of the iron or flame, that none will go onto the metal to be joined. In this case, no bond will result.

Ice Control

IN THOSE processes requiring chilled or refrigerated water for cooling, the excessive deposit of ice around the coils has been a handicap to the maintenance of exact temperatures largely because of the clogging of circulation of the water around the coils. To overcome this handicap the Lumenite Electronic Co. is offering a new Faratron Electronic Ice Control.

This new Faratron positively controls the amount or thickness of the ice deposit by automatically turning the compressor on and off. After

starting the mechanism, no attention is required to maintain exact and unchanging temperatures of the water, because the ice coating is always perfectly regulated so that the circulation of the water is free and unclogged.

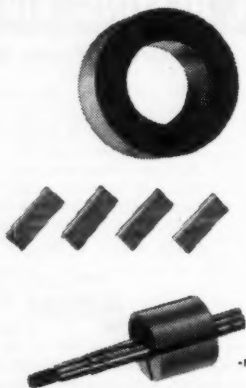
When the compressor has run until the ice coating on the coils is of predetermined thickness, the Faratron stops the operation until the ice melts to the predetermined thinness—and as soon as this occurs, the Faratron starts the compressor again. Thus the cycle is repeated, continuously.

As the Faratron Ice Control is operated entirely by electronic circuits the action is secured by the difference in electronic conductivity of ice and water.

Dairies, ice cream plants, air conditioning apparatus, food storage plants—any plant where water at 20 to 35 F. is used for cooling will find this Faratron Ice Control most valuable.

Replacements

SERVICE organizations taking care of Coldspot refrigerators have shown great interest in the complete sets of matched replacement parts now available which are ready to assemble into the original housing. They are



designed to fit all Coldspot compressors having 15/32" shafts; available in three sizes: 1", 1 1/4" and 1 1/2". All wearing surfaces are tool hard. The matched set includes rotor, vanes, and cylinder, and are available from

wholesalers or else direct from manufacturers at \$14.50 for individual sets or \$13.80 in lots of three. These sets are made by Mechanical Enterprises, 4856 Lankershim Blvd., North Hollywood, Calif.

Water Cooler

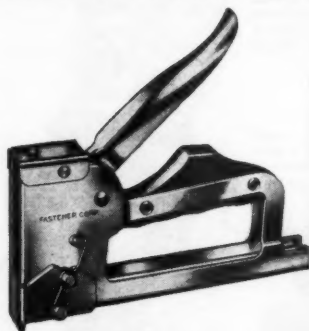
A NEW bottled-water cooler intended for cup service in any location where water consumption is light or wherein plumbing facilities are not available, is a recent



addition to a line of drinking water coolers now being manufactured by Temprite Products Corporation, 45 Plaquette Avenue, Detroit 2, Michigan.

The manufacturer has further stated that some users prefer this type cooler because of unpalatable local drinking water or because of a preference for bottled spring water.

REACHES OVER AND IN
Tacks Fast And Sure



**IT'S THE NEW DUO-FAST
GASKET TACKER**
with the Extended Lip

- For tacking hard rubber gaskets and tacking over beadings.
- One hand operates tacker with speed and accuracy—the other hand is free to hold work.
- Uses medium gauge, heavy gauge or narrow crown staples.
- Drives staples up to $\frac{3}{8}$ " in length.

EQUIPPED WITH THE NEW
Jiffy Jaw

The DUO-FAST Jiffy Jaw is something special—it takes just a second to relieve a jammed condition—Click it's off—Click it's on—no delay and on with your production.

*Call Your DUO-FAST
Specialist*

Your DUO-FAST Specialist is a good man to know—he may have ideas to speed up your production and cut your costs—Write for the name of the man in your territory.

FASTENER CORPORATION
846 Fletcher St. Chicago, Illinois

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**JIFFY
START
EMERGENCY
CAPACITOR**



- Plug in total capacity required. (If in doubt, use Capacitor Selector which tells you how much.) Clip in place of defective motor-starting capacitor. Presto! Refrigerator runs again. Install permanent replacement when you get around to it.
- Meanwhile, you've cashed in by rendering jiffy-start service. Customer is delighted. You've got another booster. • Ask your supplier for Aerovox Capacitors.



**FOR RADIO-ELECTRONIC AND
INDUSTRIAL APPLICATIONS**

AEROVOX CORP., NEW BEDFORD, MASS., U.S.A.
Export: 13 E. 40th St., New York 16, N.Y. • Cable: 'ARLAB'
In Canada: AEROVOX CANADA LTD., Hamilton, Ont.

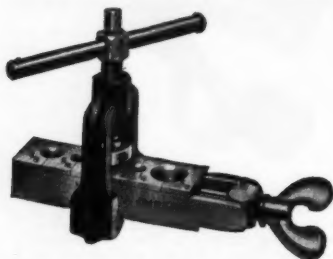
The Temprite cabinet is finished in an attractive baked metal-base enamel, which harmonizes well in virtually all surroundings.

Capacity is 3 gallons per hour cooled in 50 degree drinking water temperature in 90 degree room temperature.

This cooler is obtainable with either hermetic or open-type condensing units to meet special or unusual application demands. Cooler and storage tank are constructed of 18-8 stainless steel and copper refrigeration coils are hot-metal bonded to the stainless steel water storage tank, insuring efficient cooling performance.

Flaring Tool

FASTER operation, better flares, greater compactness and elimination of scoring of the tubing are among the advantages listed for the new Hi-Duty Flaring Tool recently announced by The Imperial Brass Mfg. Co., 1200



W. Harrison St., Chicago. The tool flares soft copper, brass and aluminum tubing for S.A.E. flare joints in 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. sizes.

In place of the usual bar it has a new die holder with sliding dies for clamping the tubing. There is only one thumb screw at the end to tighten. Friction is reduced through the use of a ball thrust bearing. Yoke slides directly over end of die holder without twisting or turning into position over tubing to be flared.

Elimination of scoring is made possible by the extra depth, smooth surface die blocks which hold the tubing securely without scoring it. Freedom from scoring is con-

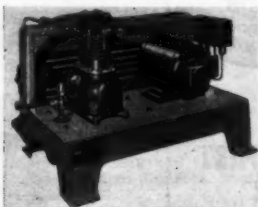
sidered by many engineers to be an important advantage in making extra strength flare joints.

The die assembly is made of heat-treated steel and yoke is made of forged steel.

The new tool is described in Bulletin No. 381-A, copies of which are available from the manufacturer.

Par Units

PAR Models HW-5 and HW-7, water-cooled units with cleanable condensers, are now included in the Par



line of condensing units. HW-5 is 1/2 hp. in size and HW-7 is 3/4 hp., both are of the heavy duty type.

In addition to the cleanable condenser feature, these 2 new models have minimum overall dimensions to accommodate installation in small areas.

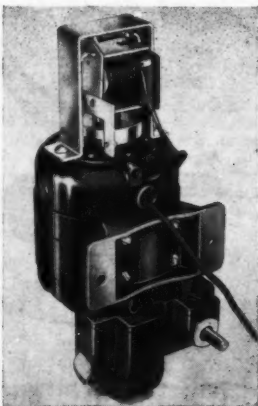
Complete details, including specifications and capacities, are available by writing to the Par Compressor Division, Lynch Corporation, Toledo 1, O.

Motor

A NEW KIND of electric motor, with a magnetic brake that provides instant stops, has been introduced by Lectro-Max, Inc., Division of Magar Home Products, Inc.

Though manufactured for vending machines, the new motor, identified as No. 1100, is useful for driving other devices. It has the smooth, silent power of dynamic balance and fills all requirements for a reliable gear motor operating on 105-125 volts, 50-60 cycle AC. Its main advantage is controlled action, with no "runaway" tendencies.

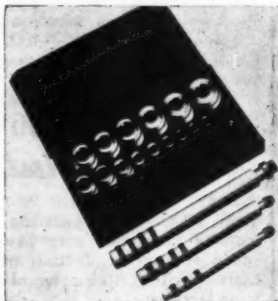
Equipped with a segmented armature insulated to endure a 1000-volt ground test, No. 1100 can be series wound



to deliver up to one-twentieth horsepower. Its die-cast case, finished in any of several colors, offers protection against dirt. A two-speed built-in governor is available when required. Semi-oilless sleeve bearings and special engineering make this Lectro-Max product excellent for long, hard use. The manufacturer will supply complete information on request.

Bushing Driver

A NEW bushing driver set, attractively packaged in a red enamel tool box 7 1/8" x 4 1/8" x 1", is announced by



Bonney Forge & Tool Works, Allentown, Penna.

The set consists of three different size handles and 17

FOR RUGGED ENDURANCE



on your next job choose a

MILLS

a condensing unit for
every installation

Mills Industries, Incorporated • 4100 Fullerton Avenue • Chicago 39, Illinois

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THE *Ultra Violet*
GERMICIDAL LAMP

for use only in refrigerated areas



STERILAIRE* brings to the refrigeration industry new opportunities for service and profitable sales. Refrigeration dealers sell STERILAIRE with new walk-in boxes. Service men sell STERILAIRE to their regular customers.

These Wholesalers merchandise STERILAIRE. Ask them for details

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CALIFORNIA
Associated Refrigeration & Equipment Co.
Authorized Supply Corp.
Rauch & Monroe
Refrigeration & Industrial Supply Co.
Refrigeration Service, Inc.
Refrigeration Supplies Distributor
Valley Refrigeration Supply Co.
Van's Supply

COLORADO
Western Appliance Corp.

FLORIDA
Ace Refrigeration Supplies

ILLINOIS
Chase Refrigeration Supply

MINNESOTA
Refrigeration & Industrial Supply Co., Inc.

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N. O. Nelson Co.
Superior Refrigeration Supply

MONTANA
Refrigeration Supply Co.

NEW JERSEY
W. I. Freeman & Co., Inc.

NEW YORK
County Seat Supply Co., Inc.

OHIO
Radio & Refrigeration Supply Co.
Ultra-Violet Equipment Co.

OKLAHOMA
K & M Supply Co.
M & V Supply Co.
Macklanburg Supply Company, Inc.

OREGON
Peerless Pacific Company

PENNSYLVANIA
Joyce Refrigeration & Equipment Co.

TEXAS
N. O. Nelson Co.
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ULTRA-VIOLET PRODUCTS, INC. 5205 Santa Monica Blvd. LOS ANGELES 27, CALIF.

*Trade mark reg. U.S. Pat. Off.

SERVICE ENGINEER

107

May, 1948

bushings in sizes that will drive all passenger car and many truck and tractor bushings. The tools are made of alloy steel carefully hardened and tempered and have a plated finish.

Auto Close Doors

AN AUTO close, insulated, swinging door is now being manufactured by the Jamison Cold Storage Door Co., of Hagerstown, Md., for separation and protection of different plant areas from heat or drafts.



Metal-clad and of sturdy construction, the doors may be pushed aside by running an electric truck or other heavy duty transportation conveyance truck through them. They will return automatically to their original position after the truck has passed. The ability to withstand shocks and bumping of this type makes them practical and time-saving for quick and easy passage. At the same time they effectively separate and isolate two areas or rooms.

The doors operate without springs or air pressure control. Here's the way it works. As the doors swing open, they lift slightly and move a two-way gravity cam which operates in a fully enclosed housing bolted to the upper portion of the side jamb and head jamb. Return of the cam by gravity closes the doors.

Because they provide fire-

resistance, privacy, and stand up to hard usage, it is believed that these doors will be especially useful in warehouses, railroad freight stations, and manufacturing in-

dustries. They will also have a wide application in the institutional field, such as hospitals, hotels and restaurants, since they can be built to any size opening required.

TRADE LITERATURE

Freezer Bulletin

A NEW Bulletin of the Washington Institute of Technology entitled "Some Developments in Zero Refrigeration for the Home," by Homer J. Dana and Arthur W. Converse, has just been issued.

The first part of the 12 page bulletin describes a new development in zero box construction made at the State College of Washington, and the second part deals with a study of faulty temperature distribution which occurs in some plants due to poor design.

Engineering Bulletin No. 71 is the designation. It is issued by The State College of Washington, Pullman, Wash.

Alters Dependabook

THE Harry Alter Co., Inc. is pleased to announce that their new Summer catalog. Harry Alter's Dependabook No. 147 has just been mailed. Many new items have been added along with the latest price changes. New lines added include Jack & Heintz motor parts, Marathon Electric motor parts, and Chieftain high-sides. If your copy hasn't reached you yet, write for it on your letterhead to The Harry Alter Co., 1728 S. Michigan, Chicago 16, Ill.

Electrimatic Bulletin

THE Electrimatic Division of the Simoniz Company, 2100 Indiana Avenue, Chicago, has just released a condensed price list bulletin for their automatic control and regulating valves. Every valve is pictured, and a brief description given with each listing. Technical data for selecting the proper water regulating valve for any water-cooled condensing unit is included. When writing ask for Bulletin 48-2.

Servel Folder

A NEW folder entitled "Servel Supermetic Power Units" giving detailed specifications and capacity data on the full line of Servel hermetically sealed units, has just been issued.

It is an eight-page folder available from Servel, Inc., Evansville 20, Ind.

Liquid Carbonic

THE Liquid Carbonic Corporation, Chicago, offers a new handy pocket-sized catalog on the 1948 line of Red Diamond Ice Cream Cabinets. This booklet contains the features and specifications of all models. It also tells where service parts for Red Diamond Cabinets may be obtained.

* *Styling that Stops 'Em* *



**Engineering
that Sells...
and SATISFIES**



Beauty that wins instant attention and approval . . . a wealth of engineering features that guarantee superior efficiency in years of convenient food protection . . . this is the combination that makes the BEN-HUR dealer franchise highly enviable.

Take any one of the FOUR popular BEN-HUR Models — 6, 9, 12.5 or 18 cubic foot sizes — give it a feature by feature comparison. The BEN-HUR comes out on top consistently—and proves its superiority in the home after you install it.

* * *

Powerful National Advertising . . . Complete Selling and Display Materials . . . Direct Mail Sales Helps . . . Seasonal Newspaper Ad Mats . . . are all EXTRAS that make the BEN-HUR Line highly profitable.

**COMPARE THEM ALL . . . And You'll Choose
The BEN-HUR Line.**

BEN-HUR MFG. CO.

Dept. R5, 634 E. Keefe Ave., Milwaukee 12, Wis.

BEN-HUR **FARM and HOME FREEZERS**
HEALTHFUL LIVING THROUGH FROZEN FOODS

REFRIGERATION SERVICEMEN

Building good will and increasing your service business is possible by taking Meter Miser calls.

Locating the leak and recharging is one of the services you can render to Meter-Miser owners if you have a supply of HERVEEN.

Customers and servicemen alike are finding this refrigerant meets their standards of performance when used in Meter-Miser units. When a loss of refrigerant has put the unit out of service, your job becomes a routine call with a supply of HERVEEN for your immediate use.



**the IDEAL
REPLACEMENT
REFRIGERANT**

Send for bulletin on "Procedure for
Recharging Meter-Misers with HERVEEN"

For deliveries, see your local jobber or write to

Conservative Gas Corporation, Modern Gas Division
MANUFACTURERS AND REFINERS
1084 Bedford Ave. Brooklyn 5, New York

PERSONNEL NOTES

McGregor with Day and Night

THE Day & Night Manufacturing Company, Monrovia, California, has announced the appointment of Ralph McGregor as Sales Engineer



R. McGREGOR

and Assistant to J. W. Rubenson, Manager of Refrigeration Sales.

Mr. McGregor is a graduate of Indiana University and has spent most of his professional life in development and laboratory work in the refrigeration industry.

He will assume, as part of his new duties, the supervision of water cooler development in the Day & Night experimental laboratories.

New Sales Manager For Wolverine

W. H. MAXWELL, Director of Sales for Wolverine Tube Division, announced recently the appointment of L. H. Littlefield as General Sales Manager for Wolverine.

Mr. Littlefield, formerly

affiliated with the Holtzer-Cabot Division of



L. H. LITTLEFIELD

the First Industrial Corporation, will headquarter in the general offices of Wolverine Tube Division in Detroit and will assume his new duties on May 1, 1948.

Service Parts Ad Manager

BECAUSE of steadily expanding business, Service Parts Company of Chicago on March 15th appointed Chester J. Banas to the newly created post of advertising manager.

"Captain" Banas was released from the army in 1947, after six years in service, three of them spent in the Pacific theatre. For the past year Mr. Banas had been with the A-1 Composition Company. Previous to going into the army he was with Ludlow Typograph Company, the Commerce Clearing House and the Process Corporation.

Increased business has also made it necessary for Service Parts Company, which handles refrigeration, air conditioning and



C. J. BANAS

heating parts and supplies, to enlarge its service facilities, for speedier and more efficient handling of orders.

Clark Promoted by Penn Electric

R. V. CLARK, formerly district manager of the company's Dayton office, was named manager



R. V. CLARK

of heating control sales according to an announcement by R. H. Luscombe, general sales manager of Penn Electric Switch Co., Goshen, Ind.

Clark will make his headquarters at the main office in Goshen, Indiana, and will be responsible for



THE LIQUID EYE

A new type of
liquid indicator

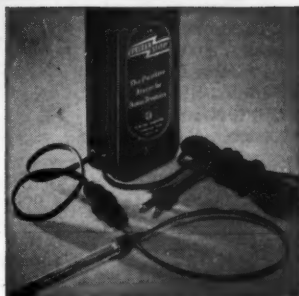
- Eliminates Pressure Drop
- Light, sturdy construction
- Positive reaction of indicator
- Pyrex tubing insures safety
- Proven under field conditions
- Pliable gaskets, impervious to Methyl Chloride, Freon-12, Sulphur Dioxide and Refrigerant Oils

Ask to see the LIQUID EYE
at your jobber

ALLIN MFG. CO.

1153 West Grand Ave.
Chicago 22, Illinois Phone: TAYlor 2015

SERVICE ENGINEER



A PROFITABLE "Push Over" SALE ON EVERY FREEZER SERVICE CALL

● Every owner of a home freezer needs this signaling device to insure quick warning of mechanical failures. Every day more freezers are being serviced in your area. You do the servicing. You know the owners. They need the Freezer Sentry.

*Here is Why You Should Sell
the Freezer Sentry*

A package item. Installed in two minutes.

● Positive action. No thermostat.
A drop of mercury makes the contact.

● Battery operated.
Trickle charger insures 5-year battery life
and 100 hours buzzer operation.

● An extra good profit margin for you.

*Immediate delivery. Write today for descriptive
material and price sheet.*

JEWETT ASSOCIATES
1033 MAIN ST. BUFFALO 8, N. Y.

the sale of automatic heating controls to the oil burner, stoker and gas markets.

Price Replaces Clark

To succeed Clark, the company appointed E. A. Price as district manager of the Dayton office. Price, a sales engineer with 11 years of experience with Penn was formerly manager of the company's Dallas, Texas district. He is replaced in the Dallas office by James Stiver, who recently joined the sales organization. A graduate engineer, Stiver was formerly with the Air Conditioning Division of General Electric Co.

Universal Appoints Representatives

ARRANGEMENTS to further develop Universal Cooler's selling and distribution facilities in the Western Section of the United States through a manufacturers' representative organization have been announced by Mr. J. P. Scott, Director of Sales for Universal Cooler Division, International Detrola Corporation, Marion, Ohio.

Hereafter, the McIntyre Sales Engineering Co. will represent the Universal Cooler Division in the Far West in the sale and application of Universal Cooler condensing units, compressors, systems and air-cooled condensers. They are located at 635 S. Kenmore Avenue, Los Angeles 5, California, telephone Drexel 3265.

There is no change in the policies or methods of distribution, however, this move will enable Uni-

versal Cooler to strengthen its service in the Far West to its many and valued customers.



V. J. McINTYRE

The McIntyre Sales Engineering Co. is newly organized with V. J. McIntyre as President and John Zant as Vice-President. Mr. McIntyre has spent seventeen years in the refrigeration business



JOHN ZANT

and was formerly National Sales Manager for Nash-Kelvinator Corporation. Mr. Zant has been Universal Cooler's sales engineering representative in the Far West for the last ten years and has been with Universal Cooler for more than thirteen years. He is a graduate mechanical engineer from Michigan State College.

Ebco Appointments

A MAJOR step forward in its intensive nationwide sales promotion program has been taken by the Ebco Manufacturing Co., the world's largest manufacturers of electric drinking water coolers, by the appointment of S. M. Davison, widely known electrical sales executive, as District Sales Manager in Chicago.



S. M. DAVISON

Mr. Davison has been with the Westinghouse Electric Corp., for over 16 years, the last seven and a half of them as North West District Manager, Electric Appliance Division, with headquarters in Chicago and jurisdiction over eight states. Prior to being appointed to that position, he was South Eastern District Manager of the same division with headquarters in Atlanta, Ga. Earlier he was Special Representative at Philadelphia and at Westinghouse headquarters office in Mansfield, Ohio.

In his new position, Mr. Davison will have supervision in Illinois, Indiana, and Wisconsin over sales of the Ebco company's own Oasis Electric Drinking Water Coolers. He also will be in charge of sales of the Ebco-made Kel-

Fine PRODUCTS DESIGN-ENGINEERED FOR RUGGED SERVICE

You'll find every practical feature in

RAPID Refillable DEHYDRATORS

... Really dehydrate; balanced dimensions; maximum dispersion area; thorough contact with silica gel. Sturdy, one-piece, leak-proof shell, triple-sealed, truly non-collapsible. Removable, large area, finger type screens permit complete cleaning, prevent damage. Bronze reinforcing spring in outlet screen.



YOUR WHOLESALE
has Rapid Dehydrators in
eight practical sizes : 5, 10, 20,
30, 40, 50, 125, 200 cu. in. Type num-
ber stamped on each for easy recognition

Fine PRODUCTS CO.

185 NORTH WABASH • CHICAGO 1, ILLINOIS



FAN-E-FEX
The All-Purpose Unit
and

ZER-E-FEX
The Low Temperature
Water Defrost Unit



FLO-E-FEX
Space Saving
Wall Unit

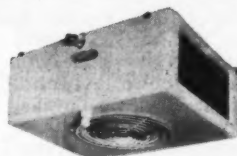
KRACK ENGINEERED

UNIT COOLERS, FIN COILS
AIR CONDITIONING

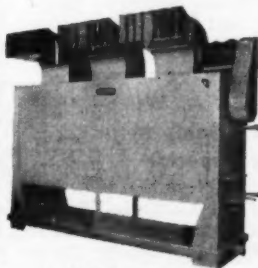
**Over 112,000
MAN HOURS**

of diligent laboratory re-
search have gone into
the development of
**KRACK Engineered Unit
Coolers.** Add to this the many years of
field experience compiled by KRACK En-
gineers and you will see how you get more for
your dollar in every way when you specify a
KRACK Engineered Unit Cooler on your next
refrigeration application. A complete line of
low-side refrigeration and air conditioning
equipment from the tiny Fan-E-Fex Junior to
the big Blo-E-Fex Floor Type Unit.

Write for further details and information to
REFRIGERATION APPLIANCES, INC.



STRAT-E-FEX
The Modern
Ceiling Unit



BLO-E-FEX
The Big Floor Unit

917-23 W. Lake St.
Chicago 7, Ill.

vinator-refrigerated coolers in this territory.

Crosley Appoints Michigan Distributor

APPPOINTMENT of J. Geo. Fischer & Sons, Inc., of Saginaw, Michigan, as distributor for all Crosley products was announced recently by Corley W. Kirby, Domestic Sales Manager, Crosley Division, Avco Manufacturing Corporation.



G. H. FISCHER

The J. Geo. Fischer & Sons, Inc., located at 1019 East Genesee Avenue, will cover Alcona, Alpena, Arenac, Bay, Cheboygan, Clare, Crawford, Gladwin, Gratiot, Huron, Iosco, Isabella, Midland, Montmorency, Ogemaw, Oscoda, Otsego, Presque Isle, Roscommon, Saginaw, Sanilac, and Tuscola Counties, in Michigan, Kirby said.

Irving A. Wilson New Sales Manager for Superior

I. A. (Irv) WILSON has been made Sales Manager of Superior Valve & Fittings Company, effective April 15, and will be located at the home office of the company in Pittsburgh, Pa.

Mr. Wilson has spent

many years in the industry gaining extensive experience in refrigeration



I. A. WILSON

work, having operated his own sales and service business in Rochester, N. Y. He has been employed by Melchior, Armstrong, Dessau Co. as branch manager in Rochester and in New York City, then Dole Refrigerating Company, whom he left to join Douglas Aircraft Corporation as a refrigeration technician for service overseas. He spent a year in East Africa, mainly in installation work at an advanced Army Air Base in Gura, Eritrea.

Shortly after returning from East Africa in 1943, Mr. Wilson joined Superior as a factory representative, covering the Pittsburgh area; in August of 1944 he became Midwestern representative for the company with headquarters in Chicago, and in February of 1945 was made Manager of Superior's Chicago Office and Warehouse, a stocking and shipping point for standard Superior products.

He is a member of A.S.R.E. and R.S.E.S. and his many friends in the industry will doubtless recall his talks at these Association meetings con-

cerning his East African experiences of a few years ago.

Kramer in Superior Chicago Office

SUPERIOR Valve & Fittings Co. announces the appointment of William H. Kramer as Manager of their Chicago Office and Warehouse, effective April 16. Mr. Kramer succeeds I. A. Wilson who has been transferred to Pittsburgh as Sales Manager of the company.



W. H. KRAMER

Mr. Kramer has had varied and extensive experience in the industry, having been employed since 1941 by Minneapolis-Honeywell Regulator Company, starting in their Detroit office, and later transferred to Chicago as Supervisor of Sales of refrigeration controls and special control applications throughout the Midwest. He also supervised assembly of fire control instruments at their Wabash, Indiana, factory during the war, and later managed the production control department there.

Prior to this, Mr. Kramer was with the Aire-Foile Fan and Blower Co. of Detroit in sales and estimating work for air

RECORDING INSTRUMENTS of Air Temperature and Motor Operation

These instruments take the guesswork out of trouble-shooting on any type of refrigeration equipment. With them you can automatically chart a written record of the true performance of the equipment you are servicing in the home, store, or cold storage plant. Such charts, taken before and after the job, are good proof of work well done.

Tempscribe styles for refrigeration service:

Temperature Ranges: — 20° to + 40° F., or — 10° to + 50° F.

Operation Recorder: either Type D for series connection up to 250 volts, or Type C for parallel connection up to 250 volts.

Ask your jobber about TEMPSCRIBE or write for Bulletin 731.

BACHARACH INDUSTRIAL INSTRUMENT CO., 7000 BENNETT ST. • PITTSBURGH 8, PA.



IT'S THE TRAINING THAT COUNTS!

Practical Shop Training

in

AIR CONDITIONING

DOMESTIC—COMMERCIAL

INDUSTRIAL REFRIGERATION

Service, Maintenance and Installation

COMMERCIAL TRADES INSTITUTE

200 South 20th Street

Department A

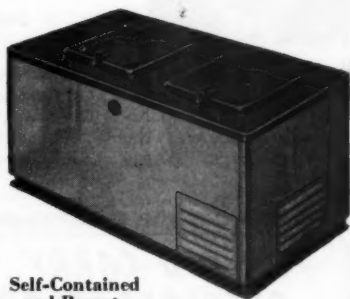
Birmingham, Alabama

Veterans Inquire About G.I. Training.
Train in Birmingham, "The Magic City."



SERVICE ENGINEER

Farm and Home Freezers



Self-Contained
and Remote



ACE CABINET CORP.

NEW BEDFORD, MASS.

Manufacturers of: Ice Cream Dispensing Cabinets—Upright Ice Cream Storage Cabinets—Home and Farm Freezers—Frozen Foods Display Cabinets—Creamer Soda Fountains—Bottling and Sandwich Units.

TINIT

CONTAINS ENOUGH
SOLDER FOR SMALL JOBS!

Save time—save solder—save labor! TINIT contains enough tin to solder small jobs without additional solder! Tin with TINIT and small jobs are FINISHED! Cleans, tins and fluxes stainless steel, black iron, hard-drawn copper and all metals in one quick operation. Sold by refrigeration service, tinning supply, automotive and other jobbers for 19 years.

TINIT MFG. CO., INC.

BUY FROM YOUR JOBBER P. O. Box 794, Denver, Colo.

conditioning equipment; also Link-Belt Co. in engineering and sales work.

He is a member of the American Society of Refrigeration Engineers.

Henry Appoints George Schaefer



GEORGE SCHAEFER

HENRY Valve Co., Chicago, announces the appointment of George

Schaefer as Works Manager. Mr. Schaefer has been with the company for eight years where he has specialized largely in problems of production. Before entering the em-



EVAN JONES

ployment of the Henry Valve Co., he attended Crane Junior College and Northwestern University.

The company also announces the appointment

of Evan Jones as Chief Engineer. Previous to his joining the Henry Valve Company in 1945, Mr. Jones was with Alco Valve Co., Carnegie-Illinois Steel Co., West Penn Power Co. and Westinghouse Electric Co. Mr. Jones is a graduate of Carnegie Institute of Technology and has spent his entire business career in the design and control of electrical equipment.

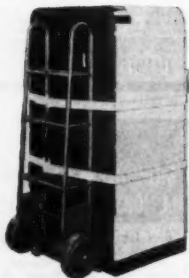
Acme Representatives

J. T. MALONEY, Assistant Sales Manager, has announced the appointment of two new regional representatives for Acme Industries, Inc.

Coward-Eastman Co., 43 South 23rd St., Philadelphia 3, Pa., has been appointed to represent Acme in Eastern

DO YOU CARRY REFRIGERATORS?

Or do you use the
EASLOAD TRUCK?



Easload Appliance Trucks can save as much as 60% in moving costs. They can cut down your trucking time at least 25%. For the Easload is made to balance the entire weight of the load on the wheels.

When you use Easload Trucks, you don't carry refrigerators — you push them on easy-rolling ball bearing rubber tire wheels.

The Easload is handy for getting the load into and out of the truck, for going up and down steps. You can slide the load on the smooth tubular Easload handles. With the double ratchet you can use two straps instead of one. Rubber guards protect the load and other appliances.

Write Today for Free Copy of "Dear Easload"

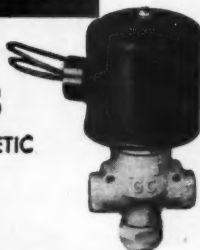
COLSON EQUIPMENT & SUPPLY CO.

1319 WILLOW STREET

LOS ANGELES 13, CALIFORNIA

For Efficient Refrigeration

New
K-20-5
ELECTRO-MAGNETIC
VALVE



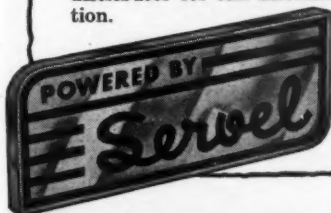
For complete specifications on Automatic Pressure, Temperature and Flow Controls, request new Catalog 52C.

GENERAL CONTROLS
801 ALLEN AVENUE GLENDALE 1, CALIF.

FACTORY BRANCHES: PHILADELPHIA • ATLANTA
BOSTON • CHICAGO • KANSAS CITY • NEW YORK
DALLAS • DENVER • DETROIT • CLEVELAND • HOUSTON
SAN FRANCISCO • SEATTLE • PITTSBURGH
DISTRIBUTORS IN PRINCIPAL CITIES

Eliminates Oil "Slugging"...

—Servel Supermetic units are so designed as to eliminate the troublesome and damaging effects of oil "slugging." Get the "inside" story on this modern refrigeration unit. Call your local Servel distributor for full information.



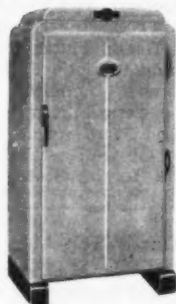
Electric Refrigeration Division
SERVEL, INC.
EVANSVILLE 20, INDIANA

SERVICE ENGINEER



DOMESTIC ELECTRIC REFRIGERATORS

**IMMEDIATE
DELIVERY
FROM
SPECIAL
EXPORT
RESERVATION
STOCK**



Model

D31—3.3 cu. ft. £60. C.I.F. any port in the world. Designed for tropical use.

D66—6.6 cu. ft. £80 C.I.F. any port in the world. Designed for tropical use.

D8—8 cu. ft. £70. C.I.F. any port in the world.

Details of Commercial and other refrigeration equipment upon request.

Special terms to Bulk Buyers.

Write at once to
LONGFORD ENGINEERING CO. LTD.,
Dept. S.E.,
Bognor Regis, Sussex, England.

Telephone 2201 (10 lines)
Codes: Bentley & Marconi
Telegrams: Longworks Bognor

For men who want to know more about

AIR CONDITIONING, REFRIGERATION & HEATING

Write for free booklet and class
starting dates

Detroit Air Conditioning Institute
4125 Grand River Detroit 8, Mich.

Pennsylvania, Southern New Jersey and Delaware. The principals are Charles W. Coward and Carl B. Eastman, both of whom are well known throughout that territory.

Paller Engineering Co., 1037 North Pennsylvania St., Indianapolis 4, Indiana was appointed the Acme representative for Central Indiana. Ben Paller is well established in the Hoosier State.

McCraday for Alco

ROY B. McCRADY, field engineer of Alco Valve Co., St. Louis manufacturers of refrigerant control valves, has been promoted from the company's Chicago office to take charge of the southwest territory which includes Texas, Oklahoma and Louisiana.

With the exception of three years in the U. S. Engineer Corps during the war, Mr. McCraday has



R. B. McCRADY

spent his entire business career with the Alco firm, working up through various plant and engineering departments.

He attended the Missouri School of Mines in Rolla and Washington University in St. Louis.

Buehring for Simpson

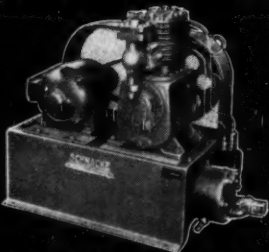
THE Simpson Electric Company, Chicago, announces the appointment of Melvin O. Buehring as Sales Manager to



M. O. BUEHRING

succeed the late George H. Koch. Mr. Buehring, who handled factory expediting and priority work during the War, has been an assistant to Mr. Koch

SCHNACKE
COMPRESSORS
and *Complete*
CONDENSING UNITS



THE INDUSTRY'S MOST
Easily **SERVICED UNITS**

For detailed Service
and Engineering data, write
SCHNACKE, INC.
1024 Columbia Street EVANSVILLE, IND.

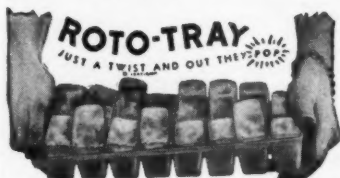
**greater
resiliency**

Jarrow...
Refrigerator Door Gaskets
Are Again Made From
Crude Rubber

**Always Demand These
Quality Gaskets**

JARROW PRODUCTS
420 N. LA SALLE ST. CHICAGO 10, ILLINOIS

The Now Famous POLYTHENE PLASTIC



Replacing old fashioned ice cube trays because of its many advantages.

- **INSTANT RELEASE** of cubes with a slight twist of the tray, no running water necessary.
- **NO FORCING** to remove the tray from evaporator.
- **NO WASTE**—remove one or any number of cubes desired.
- **FLEXIBLE** at all required temperatures. The ROTO TRAY is now being used by many refrigerator manufacturers.

A Patented Development of

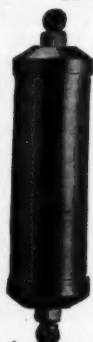
REPUBLIC MOULDING CORPORATION
4645 W. Lexington Chicago 44, Ill.

SHANK VALVES

Shank

COPPER DEHYDRATORS

with
**BRASS forged
ENDS**

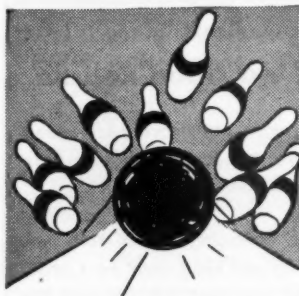


2" O.D.—Copper Tubing with $\frac{1}{4}$ " and $\frac{3}{8}$ " Flare Fittings. Ends—Brass Forgings with large hexagon area for Easy Service Mounting. Copper Tube sweat fitted to forging. Brass screens and felt filter.

1" O.D.—Spun End Copper Tube—Brass End Fittings properly proportioned and silver soldered. Brass screens and felt filter.

*If Your Jobber Doesn't
Stock — Write Us.*

CYRUS SHANK COMPANY
627 W. Jackson Blvd. Chicago 6, Illinois



Making The Tough Ones Look Easy

G.T.I. training is for the man who wants to make every minute on the job count. Learn the short cuts from experts in the field of Domestic and Commercial Refrigeration and Air Conditioning Maintenance and Service.

Full or part time Residence course or Combination Home Study and Shop Training.

VETERANS—C.T.I. courses approved under the G.I. Bill.

NON-VETERANS—Do not let lack of ready cash delay your start. Investigate our Pay After Graduation Plan and our Low Easy Payment Plan.

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COMMERCIAL TRADES INSTITUTE

1400 Greenleaf Avenue

Chicago 26, Ill.

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See those slots on the edge of this magazine? Every issue is punched that way to fit into a handy, substantial binder, that permits you to add each copy as it is received. Every page lies flat and is easily

read. You will want to save many of the articles in R. S. E. for future reference, this is the way to do it. The binder holds 12 issues, no hunting around for missing issues. Send your remittance for \$2.00 to:

The Refrigeration Service Engineer, 435 N. Waller, Chicago 44

in the Sales Department since that time. Theodore Franks has been named to succeed Mr. Buehring.

General Controls Appointments

J. F. DAY, Director of J. Sales for General Controls Co., has announced the promotion of **Mel W. Lewis** to Branch Manager of the Cleveland, Ohio factory branch office. Mr. Lewis has been associated with General Controls Co. in San Francisco for the past ten years.

The Cleveland office serves General Controls' customers in most of Ohio, western New York State, northwest Pennsylvania, southeast Indiana, and central Kentucky.

The company also announces the opening of a new and enlarged Denver

factory branch office. The new office is located at 1162 Elati Street, Denver 4, Colorado; the new telephone number is Cherry 6776. **M. S. Wilson** is branch manager of this office.

The Denver office serves General Controls' customers in Colorado, Utah, Wyoming, Montana, and parts of Idaho, New Mexico, Kansas, Nebraska and South Dakota.

Nutter Appointed Assistant Manager

LEE D. NUTTER has been appointed assistant manager of purchasing for the General Electric Appliance & Merchandise Department, E. E. Dunning, the Department's purchasing manager, announced today.

Mr. Nutter was previously district representative on refrigeration in the Atlantic district with offices in Philadelphia. Following three years of commercial engineering study at Carnegie Institute of Technology and graduation from Bentley Business School in 1937, he entered the Company's business training course in Bridgeport, transferring in 1940 to the sales training course.

In 1941 he joined the order and stores section and was later in the purchasing section of the Company's home laundry equipment division and was in charge of purchasing at the York, Pa. Works, until his appointment to the Philadelphia district.

Mr. Nutter is married and has three children.

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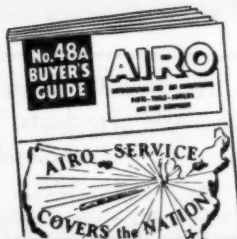


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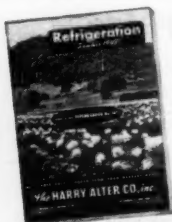
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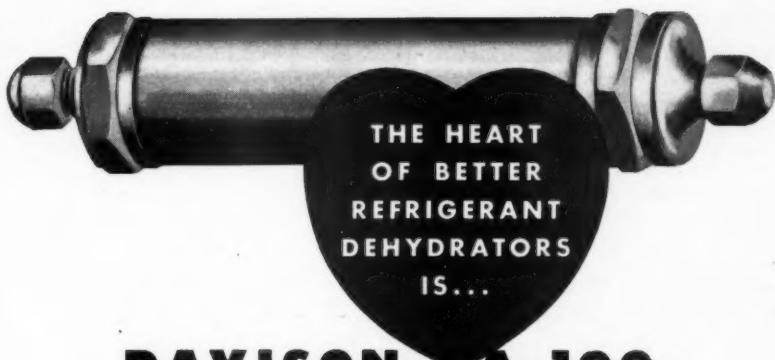
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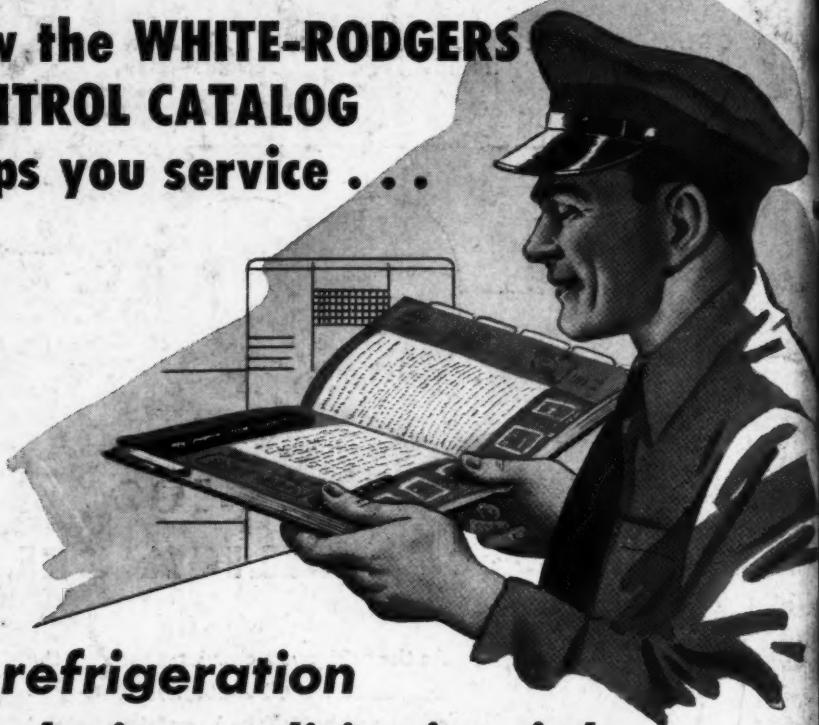
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